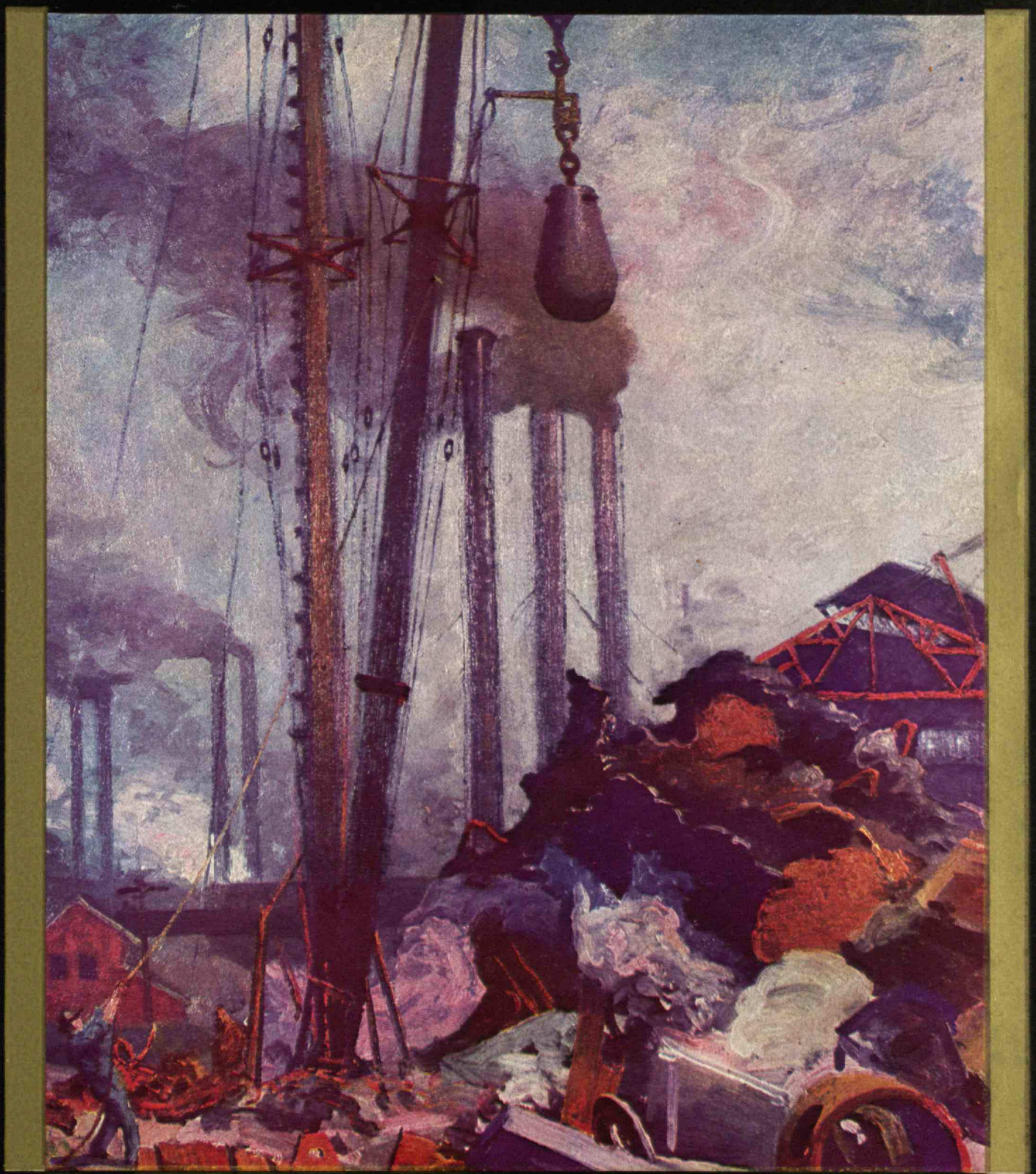
THE TECHNOLOGY REVIEW

JULY 1931



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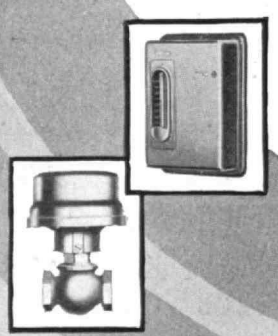

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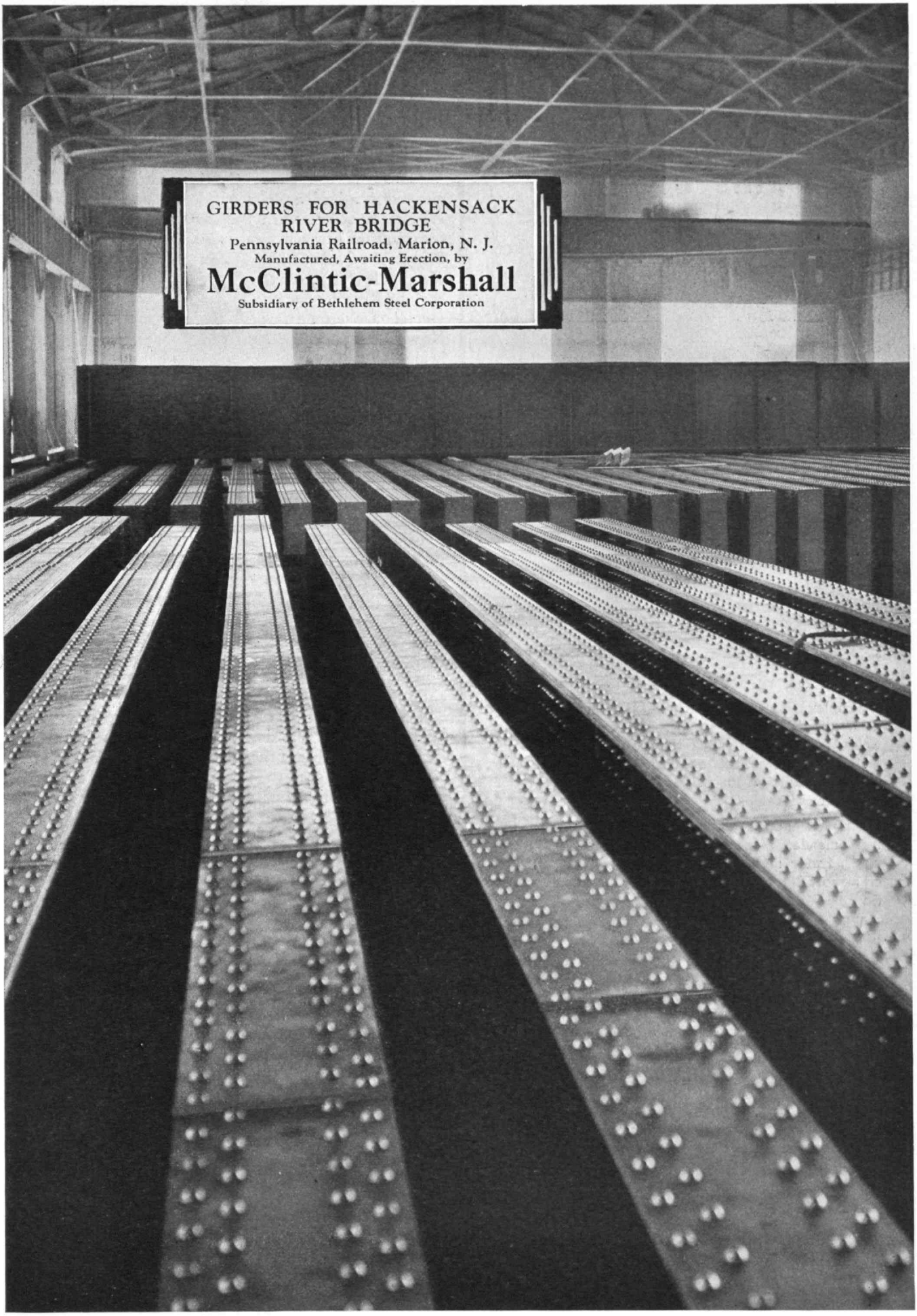


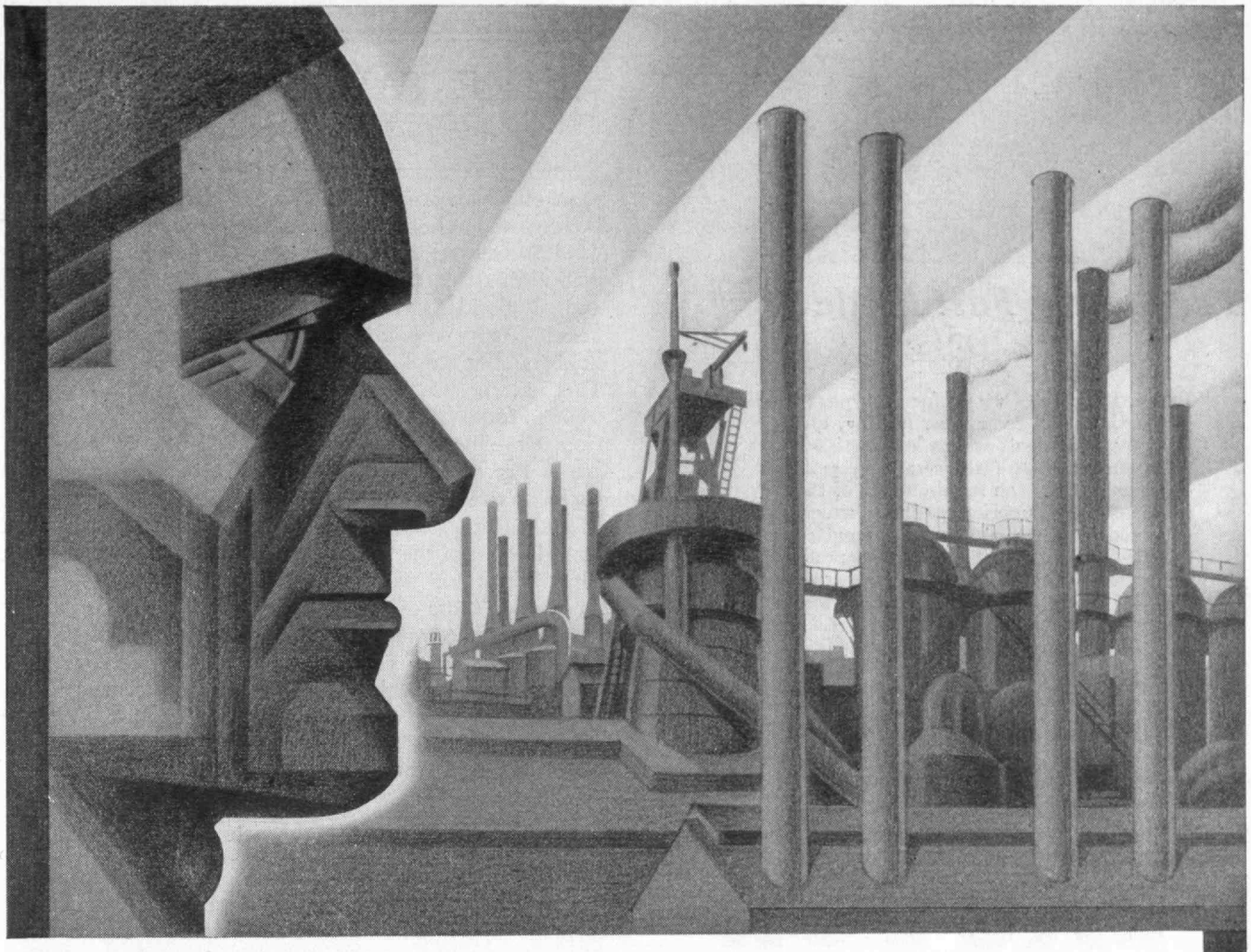
T. J. Skillman, *Chief Engineer*, Pennsylvania Railroad Company A. R. Wilson, *Engineer of Bridges and Buildings*

THE TABULAR VIEW

OTHMAR H. AMMANN, author of "Brobdingnagian Bridges" on page 441, is internationally distinguished as a bridge engineer. He has been connected in various capacities with the investigation, design, and construction of such famous structures as Queensboro Bridge, the Quebec Bridge across the St. Lawrence River, the arch bridge across the St. John River for the Provincial Government of New Brunswick, the bridge of the C. & O. railroad at Sciotoville, Ohio, and as assistant chief engineer for the design and construction of the Hell Gate Bridge over the Hudson at 57th Street, New York. From 1923 to 1925 he was construction engineer for New York City, from which position he was appointed Chief Engineer of Bridges of the Port of New York Authority. In this new position he was in general charge of the planning and construction of the Outerbridge Crossing over the Arthur Kill, the Goethals Bridge, the arch bridge across the Kill van Kull, and the suspension bridge across the Hudson between Fort Washington, N. Y., and Fort Lee, N. J. He is also a member of the board of engineers for the proposed bridge to span the Golden Gate at San Francisco, the greatest project of its kind conceived by engineers. Since 1930, he has been Chief Engineer of the Port of New York Authority in charge of planning, construction, and maintenance of all its projects, including preliminary studies for the suggested vehicular tunnel under the Hudson at Weehawken, and for various terminal projects. ¶ Mr. Ammann is a native of Switzerland and a graduate in civil engineering of the Swiss Polytechnic Institute at Zurich in 1902. He came to the United States two years later and became a citizen in 1924. In 1918 he was awarded the Thomas Fitch Rowland prize of the American Society of Civil Engineers for his paper on the Hell Gate Bridge and Approaches, and this June he received the degree of doctor of engineering from New York University. His article in this issue is the outgrowth of an Aldred Lecture delivered by Mr. Ammann at the Institute during the past year.

"OUR race has lived on earth for at least a million years, and for only 5,000 years have there been any written records to tell us the kind of man who lived here. For all the rest of this time, if we would rebuild the picture of his life, we must depend on the fragments he left behind him, and of these, the least fragmentary are the remains of his stone construction." For all these many

(Continued on page 436)



STEEL

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Great Industries No. 2

THE TABULAR VIEW

(Concluded from page 434)

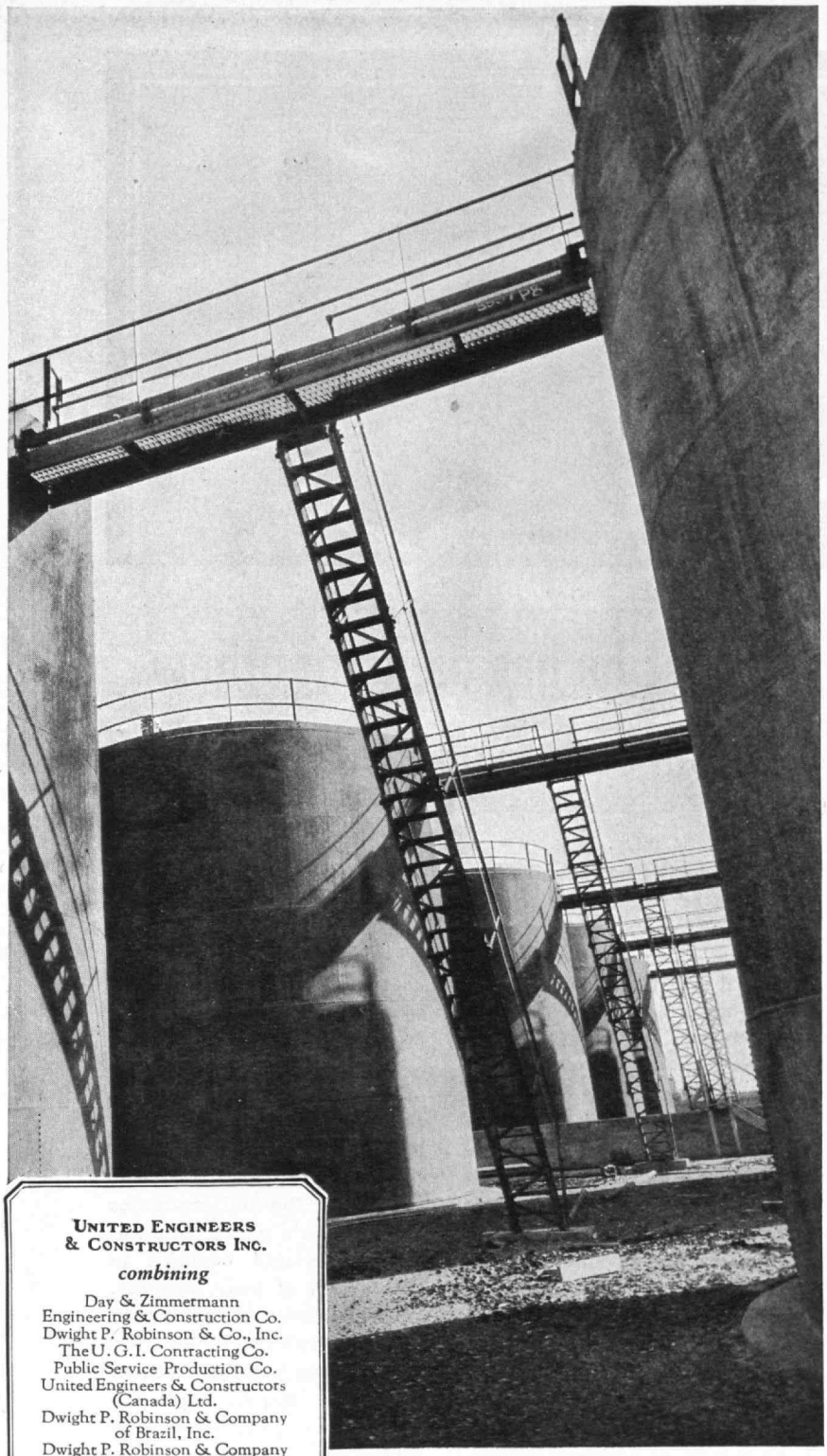
years of construction there is no adequate history for the layman, and in his article appearing on page 445, THOMAS F. MCSWEENEY ably sets forth the need for such a History of Building Construction. His is the voice of a builder, and the builder's voice has been long in making itself heard. The history of his profession is Mr. McSweeney's hobby and he has collected a large library on the subject. This year he has been giving a course on his favorite topic to students in the Department of Building Construction at the Institute. Mr. McSweeney is himself a graduate of the Institute in the class of 1916, obtaining his bachelor's degree from the Department of Sanitary Engineering. Until recently, he was Vice-President and General Manager of the Pilgrim Granite Corporation. ¶ The illustrations for this article were done by DAVID J. ABRAHAMS, Class of 1922, a Boston architect. Curiously enough, Mr. Abrahams received his Institute degree in the Department of Engineering Administration. He became interested in architecture after he accepted a position selling building materials, and trained himself for this specialized profession by self-study, special work in the Institute's Department of Architecture, and by taking evening courses in the Lowell Institute School.

HAROLD E. LOBDELL contributes the second and last of his papers on the development of the locomotive. For those who are reading these columns with no intimate acquaintance with the Institute, Mr. Lobdell, Class of 1917, is Dean of Undergraduates at Technology, Publisher of The Review, and has an especially acute interest in railroads and their problems. His interest in this form of motive power vies with that of Edwin H. Whitney of Rehoboth, Mass., who is a famous student of the locomotive.

OTHER contributors to the July issue are Messrs. SAMUEL H. CALDWELL and HAROLD L. HAZEN, instructor and Assistant Professor respectively, in the Department of Electrical Engineering. They are both graduates of the Institute, Mr. Caldwell in the Class of 1925 and Mr. Hazen in the Class of 1924. ¶ The cover of this issue is a reproduction of a copyrighted painting, entitled "The Skull Cracker," by GERRIT A. BENEKER.

AN announcement last month in New York of an electric, pipeless organ invented by RICHARD H. RANGER, '11, recalls another electrical musical instrument described in the May, 1930, Review. We refer to the instrument developed by ARTHUR C. HARDY, '18, under the supervision of du Val R. Goldthwaite. There is reason to believe that future orchestras will be composed of various electrical instruments, and musical composition may then be entirely altered to fit these devices.

WITH this issue The Review closes Volume XXXIII. The next issue you will receive will be the October number, which goes in the mails on the 27th of September. The Review is not published in August and September.



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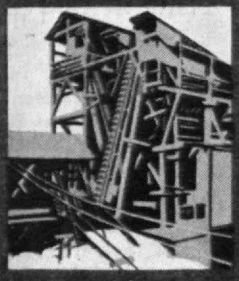
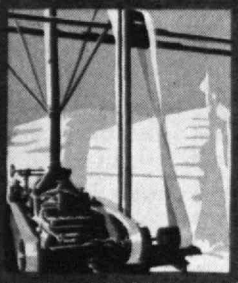
Goodyear Air Hose as installed by the G.T.M. for heavy pneumatic tools in quarry



Goodyear Elevator Belt as recommended for New Braunfels Limestone Co., New Braunfels, Texas



Goodyear Transmission Belting as specified by the G. T. M. for Steele-Alderfer Co.

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THE TECHNOLOGY REVIEW

Edited at the Massachusetts Institute of Technology

A NATIONAL JOURNAL DEVOTED TO SCIENCE, ENGINEERING, AND THE PRACTICAL ARTS

VOLUME XXXIII NUMBER 9

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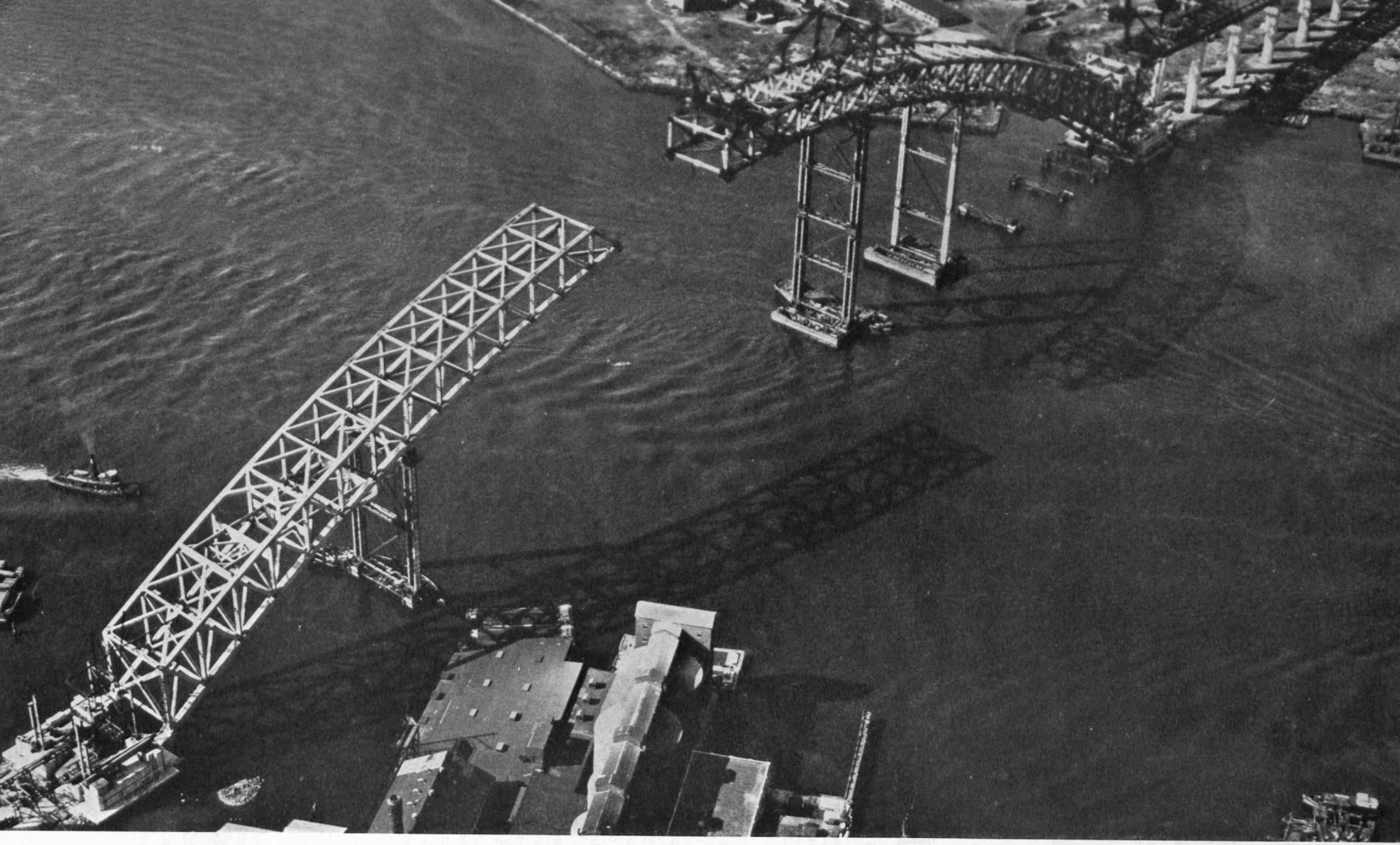


Fairchild Aerial Surveys, I

THE KILL VAN KULL BRIDGE

ERECTING THE WORLD'S LONGEST STEEL ARCH BY MEANS OF COMBINED CANTILEVER AND TEMPORARY FALSEWORK METHODS

THE TECHNOLOGY REVIEW

VOLUME 33 JULY, 1931 NUMBER 9

BROBDINGNAGIAN BRIDGES

A Great Engineer Discusses (1) Spectacular Achievements of Modern Bridge Builders (2) Is a Span Two Miles Long Structurally Feasible? (3) Making Bridges Beautiful As Well As Strong

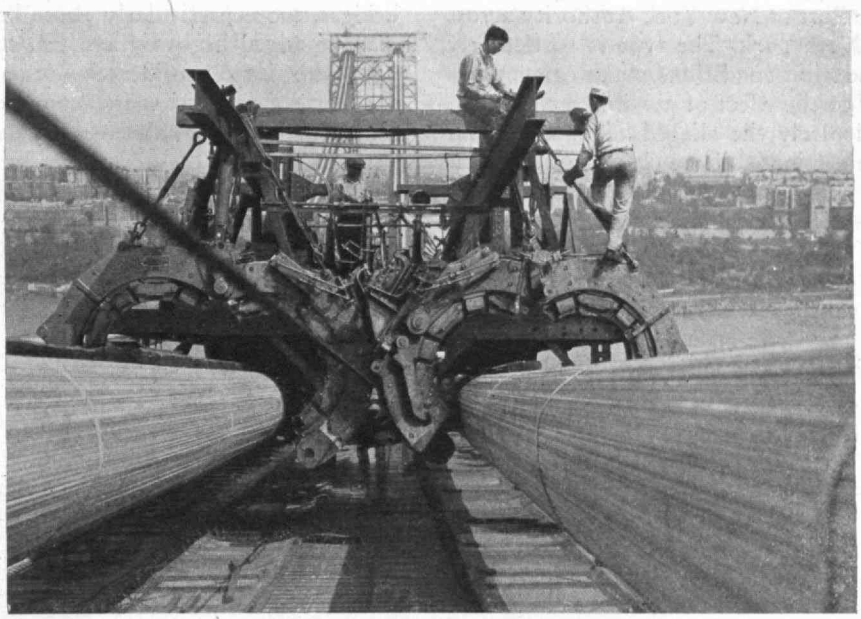
BY OTHMAR H. AMMANN

See page 434

A HUNDRED years ago it was predicted that the famous bridge across the Menai Straits in England, with a span of 570 feet, would forever constitute a world wonder. Only 50 years later that maximum length of span was more than doubled and the suspended mass increased tenfold in the Brooklyn Bridge across the East River in New York. And if we compare Brooklyn Bridge, which 50 years ago was by far the most outstanding engineering work of its kind, with the Hudson River Bridge in New York now nearing completion, we find that the span length in the last 50 years has again been more than doubled, the traffic capacity multiplied at least four times, and the total mass suspended over the river more than eight times.

It is also of interest to note that in spite of this enormous increase in the mass and quantity of material in the Hudson River Bridge, the time of construction will be less than one-half that consumed by the Brooklyn Bridge, and that the total cost, in proper consideration of the depreciation of the purchase value of money, will be less than twice that consumed by the much smaller Brooklyn Bridge. These results have, of course, been made possible only by the far-reaching developments in other technical lines, such as mechanical and electrical engineering, and metallurgy, as well as in the field of theory and experiment.

From the engineering or technical point of view, progress in bridge construction manifests itself in improved types and forms of construction and details, in better and stronger materials, in more accurate and cheaper shop-work, and in more expeditious and safer erection, all of which are essential for the construction of larger bridges. It is principally along these lines that I desire to illustrate progress made in recent years.



COMPACTING THE WIRE CABLES OF THE HUDSON RIVER (GEORGE WASHINGTON) BRIDGE

Types of Bridges

The selection of the type or form of bridge to be used for any particular crossing is, from the engineering point of view, one of the most important factors in the construction of large bridges, and is a question which has often led to animated discussions and differences of opinions in the profession. It is a question which depends upon many different factors and not in the least upon the personal conceptions of the designer.

CANTILEVER ERECTION OF HELL GATE ARCH BY TEMPORARY BACKSTAYS

At the beginning of this century and up to as late as the World War, two types of bridges appeared to be particularly favored, although they are generally the least satisfactory from the æsthetic point of view: the cantilever bridge for the longer spans and the simple span truss type for the lesser span lengths of up to 700 feet. The most outstanding example of the former type is the Quebec Bridge across the St. Lawrence River with a main span of 1,800 feet, which until recently has been the longest span in existence. The longest simple span is that of the bridge across the Mississippi at Metropolis with a length of 720 feet (see page 443).

Many bridges of the cantilever type have been built across the Ohio, Mississippi, and other wide streams. To the most recent and typical examples belong the two bridges built by The Port of New York Authority across the Arthur Kill in New York. The type is particularly suitable where foundation conditions make other types expensive or subject to the effect of possible settlements. But its merits, particularly the alleged advantage of its being statically determinate, have been overrated.

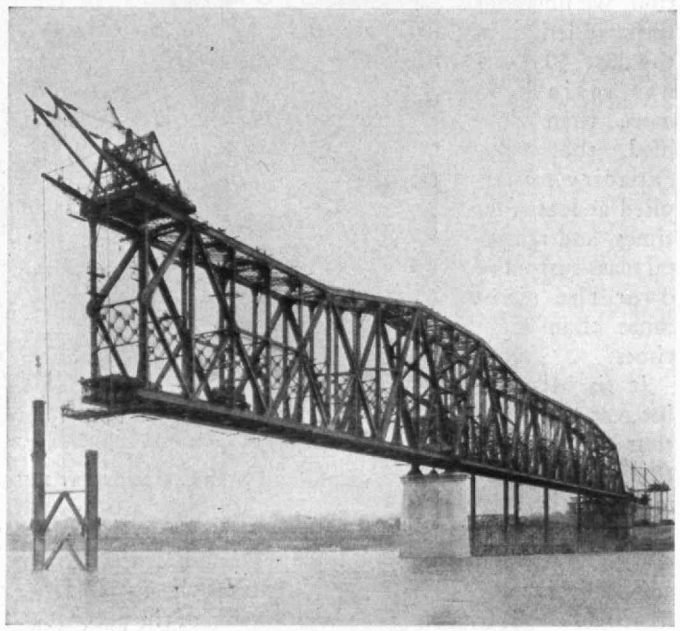
For a long period there existed a very general prejudice against the so-called continuous truss, so much so that, in spite of its economic advantages, it was practically excluded from consideration in favor of the simple truss or the cantilever. Its application in 1916 in the bridge across the Ohio at Sciotoville with two spans of 775 feet each marked a revival of that meritorious type and it has since been employed in quite a number of bridges (see page 442).

Less frequently, and only under favorable circumstances, such as the presence of rocky abutments to resist its thrust, has the arch type been used. Until the present the famous Hell Gate Bridge, completed in 1917, across the East River in New York with a span of nearly 1,000 feet has been the most outstanding example, but it is now being outranked by two bridges, both now nearing completion; namely that across the entrance to Sydney Harbor in Australia with a span of 1,650 feet, and that across the Kill van Kull in New York with a span of 1,675 feet.

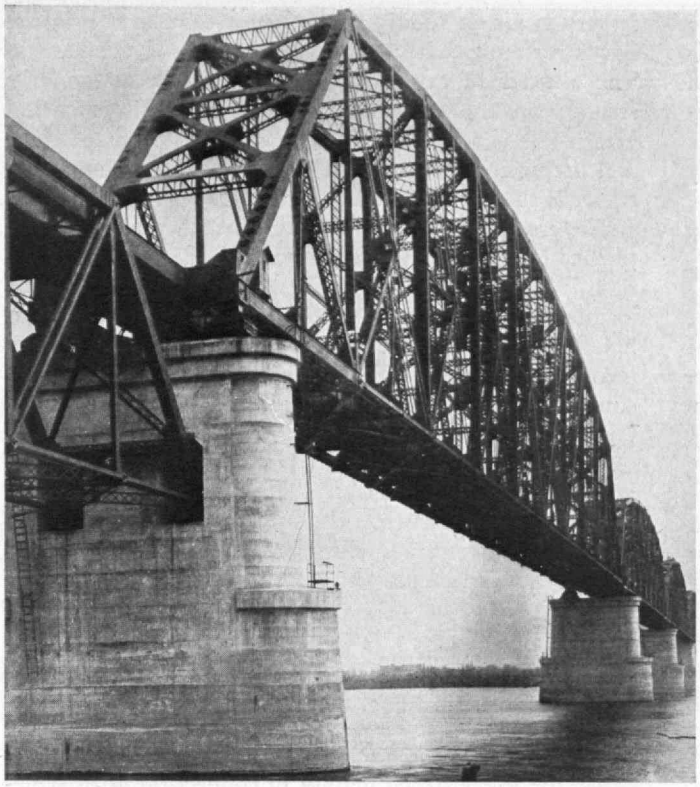
The suspension bridge is the type eminently suited for long spans and is now recognized as the only one to be considered for very long spans. The true nature of this naturally graceful type has long been misunderstood and it is only very recently that it has begun to regain the prominent position which it occupied in the early part of the Nineteenth Century. A large number of bridges of this type, particularly for highway and combined highway and rapid transit rail traffic, have been built in the last 10 or 15 years, even with moderate spans, and its greatest length of span has been continuously leaping to new records.

The Manhattan Bridge in New York with a span of 1,470 feet was the most outstanding modern suspension bridge only 10 years ago. Since then there followed in rapid succession the Bear Mountain Bridge across the Hudson with a 1,630-foot span, the Delaware River Bridge in Philadelphia with 1,750 feet, the Detroit River Bridge with 1,800 feet and now the Hudson River Bridge nearing completion with 3,500 feet. And a start has been made on the Golden Gate Bridge in San Francisco with a span of 4,200 feet.

A factor which, I believe, has very materially contributed to the revival of the suspension bridge, is the changed conception regarding the proportioning of the so-called stiffening system of this type. As a result of the insufficient rigidity of many of the early light and short suspension bridges it became a general practice here and abroad to proportion suspension systems as rigid systems, such as the truss or the upright arch. This theory leads to enormous waste of material in long-span suspension bridges, more particularly those bridges carrying highway or mixed highway and rail traffic, because it does not take into consideration the stiffening effect of the large suspended mass, compared to the relatively much smaller load units which cause the span to sag or



SCIOTOVILLE BRIDGE OVER THE OHIO RIVER. LONG SPAN CONTINUOUS TRUSS (2 SPANS OF 725 FEET)



720-FOOT SPAN OF THE METROPOLIS BRIDGE OVER THE OHIO

oscillate. Conspicuous stiffening systems also give an unsightly, clumsy appearance to such bridges and destroy the gracefulness of the cables hanging in their natural catenary.

Today the justification of a flexible, more economical, and more graceful stiffening system in long and heavy suspension bridges is generally recognized. Studies made in connection with the Hudson River Bridge indicated that such a long span of 3,500 feet, with comparatively short side spans, designed to carry vehicular and rapid transit traffic, required practically no stiffening of the freely suspended cables. Accordingly, the bridge was designed and is being built without any stiffening whatsoever in its initial stage, in which only the upper deck for highway traffic will be in place. When the lower deck for rapid transit rail traffic is added, it will have comparatively flexible, very light stiffening trusses between the two decks.

When it is considered that in such a long span every pound of steel unnecessarily applied for stiffening is merely ballast, and that this pound of useless material requires the use of another pound of material in the cables, towers and anchorages it may be realized that such wasteful proportioning involves millions of dollars.

Quality of Materials

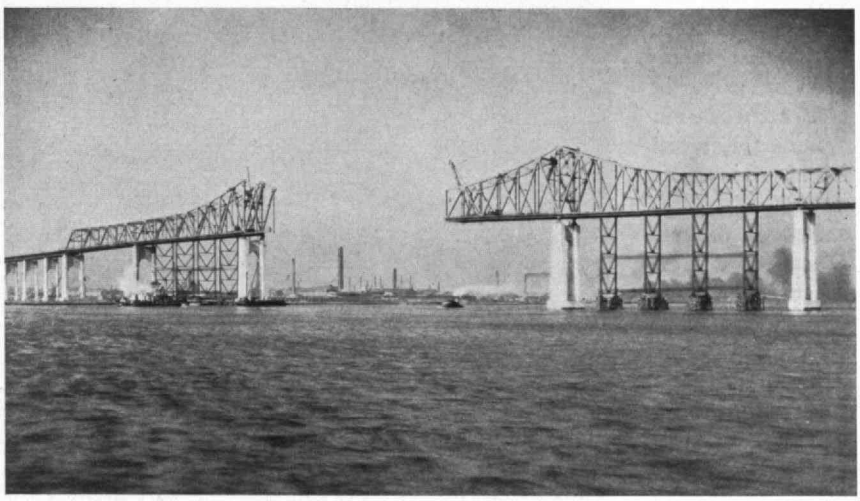
AN IMPORTANT phase in the development of long span bridge building is the improvement of the materials, more particularly the introduction of so-called high strength alloy steels, for high strength material does not only effect a reduction in the dead weight which in large bridges may mean a saving of millions of dollars, but it makes possible certain structural members and connections of large proportions which would be impracticable with ordinary steel. For riveted members and connections a medium hard structural steel of from 55,000 to 70,000 pounds per square inch is still generally used for ordinary bridges.

About 25 years ago nickel steel, which has a strength of about 50% greater than the ordinary steel, was introduced and found increasing application in large bridges, as for instance in the Quebec Cantilever Bridge, in the stiffening trusses of the Manhattan Bridge, and also in a number of long simple span trusses.

During and after the World War silicon steel entered the field in sharp competition with nickel steel. Its strength is about 40% greater than ordinary steel or about 7% less than nickel steel, but it can be manufactured at a materially smaller cost than the latter. In fact, its cost has now been so reduced that it can be used economically even in bridges of medium size in place of ordinary steel. The towers and floor structure of the Hudson River Bridge are built almost entirely of silicon steel.

In the case of the Kill van Kull arch with its exceptional span of 1,675 feet, manganese steel was introduced for the heavy main arch ribs. Its strength is equivalent to that of nickel steel, but its price was slightly less. In this same bridge there was also used for the first time manganese steel for the rivets with a strength of about 60% in excess of that of ordinary steel rivets.

For suspension bridges in particular the marked improvement in quality of wire steel was of importance. Since the construction of the Brooklyn Bridge in which steel wire of 160,000 pounds per square inch strength was used for the first time in place of the earlier wrought iron wire, the strength of wire successively stepped up to a new record in almost each new large bridge until it has now reached a strength of nearly 240,000 pounds per square inch in the cables of the Hudson River Bridge.



METHOD OF ERECTING CANTILEVER BRIDGE. OUTERBRIDGE CROSSING AT NEW YORK

The question is frequently asked what would be the maximum practicable length of span. The answer to this depends essentially upon the quality of steel wire. With the quality now available it would be structurally feasible to build suspension spans of up to about 10,000 feet in length. Such a span, of course, would be extremely costly and probably nowhere justified financially.

Shop Fabrication

IN THE fabrication of structural steel members in the shops important improvements have been made in the past 20 years which were essential for the building of large bridges. Inaccuracies in the fabrication of steel members were largely responsible for the failure of the Quebec Bridge in 1907. Since then more accurate methods and powerful machines have been introduced so that in the present day large bridges a remarkable degree of accuracy is being obtained. Thus, for instance, the towers of the Hudson River Bridge were erected with an accuracy of three-sixteenths inch in a height of 600 feet, and the 1,675-foot arch span of the Kill van Kull Bridge was closed with a difference of one-half inch from the theoretical length.

Today individual members of greater size and weight are being completely assembled in the shops. While 30 years ago members of 25 to 30 tons weight were exceptional, the weight attained today is not infrequently 80 to 100 tons and in a few cases 150 tons. The accurate fitting together of connecting members is also being given great care today. In some cases whole trusses, or large portions thereof, have been completely assembled at the shops.

Field Erection

WHEN we compare the present day erection of large bridges with that of 20 or 30 years ago, we notice two striking improvements; the speed with which enormous masses of steel for large bridges as well as buildings are being assembled in the field, and the avoidance of cumbersome falsework and erection equipment. The structures often appear during construction as if they were erecting themselves, and this is literally the fact to the extent that frequently members of the final structure proper are being used to lift or temporarily support other members or parts of the structure. Where falsework is unavoidable, it is almost invariably built of steel members which are often members of the permanent structure.

Erection of bridges by the so-called cantilever method with or without partial use of falsework, is very common today, not only for cantilever bridges, but for simple and continuous trusses and for arches. The absence of falsework of any kind is particularly striking in the erection of the towers of suspension bridges. A simple frame carrying the erection derricks and lifting itself up along the completed portion of the tower is the only temporary structure.

The erection of the wire cables in America is accomplished by the old and well-tried method of "aerial spinning," in which the individual wires are pulled from one anchorage to the other over the towers. Then, packed in bundles or strands, the wires are lifted from temporary into final position in the cable and finally the cable is compacted into cylindrical form and wrapped with a layer of finer wire (see page 441). While the principle of this method is an old one, having been used already 50 years ago in the Brooklyn Bridge, the machinery and equipment necessary for the spinning have undergone radical improvements which have resulted in greater accuracy and speed of erection.

Theory and Research

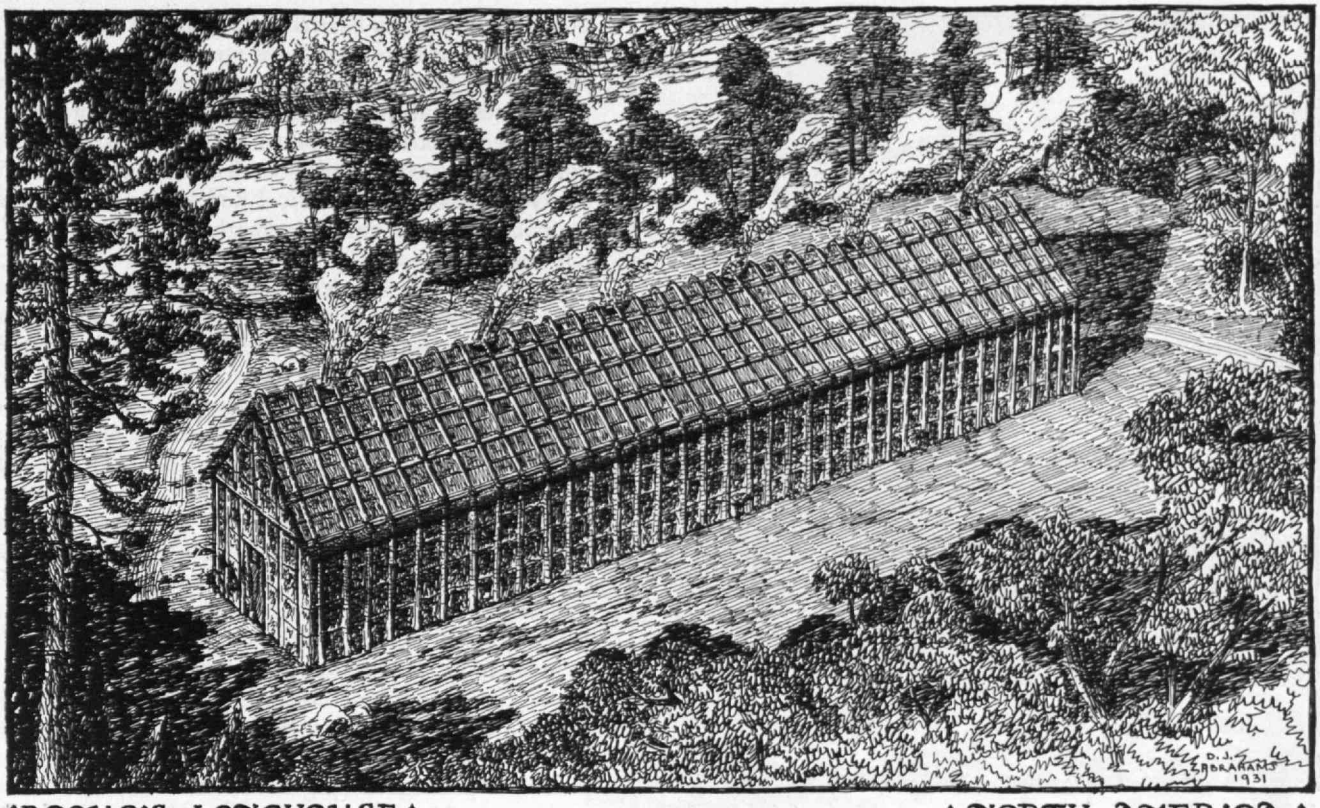
ADVANCES in theory and extensive research work have aided materially the construction of large bridges, in fact, refinements in theory and experiments are called for and justified mainly in connection with structures of unusual size. The refinements in theory include the elaborate calculation of secondary stresses of all kinds, stresses which are usually neglected in ordinary structures, but whose magnitude it is well to determine, and where necessary provide for, in larger ones. Such elaborate calculations were carried out in connection with the Hell Gate Bridge, the Hudson River Bridge and more extensively in the Kill van Kull arch.

Stress determinations by calculation are now being supplemented by stress measurements on models. In order to check the highly statically indeterminate stresses in the towers of the Hudson River Bridge a celluloid model six feet high of one of the tower bents was constructed and the stresses were measured by means of very sensitive extensometers. For the Kill van Kull Bridge a complete model of the main arch was built of brass, loaded in various manners vertically as well as horizontally and the stresses measured by extensometer. A complete model of the Mount Hope Suspension Bridge was recently built by Professor Beggs of Princeton and the stresses in it measured with excellent results.

As a further means to check the theory, stress

(*Concluded on page 464*)

BUILDING THE CONCRETE ARCHES OF THE WESTINGHOUSE MEMORIAL BRIDGE, PITTSBURGH



IROQUOIS LONGHOUSE : : NORTH AMERICA :

NEEDED: A HISTORY OF BUILDING CONSTRUCTION

At Last a Builder Speaks for His Profession

By Thomas F. McSweeney

Illustrated by David J. Abrahams

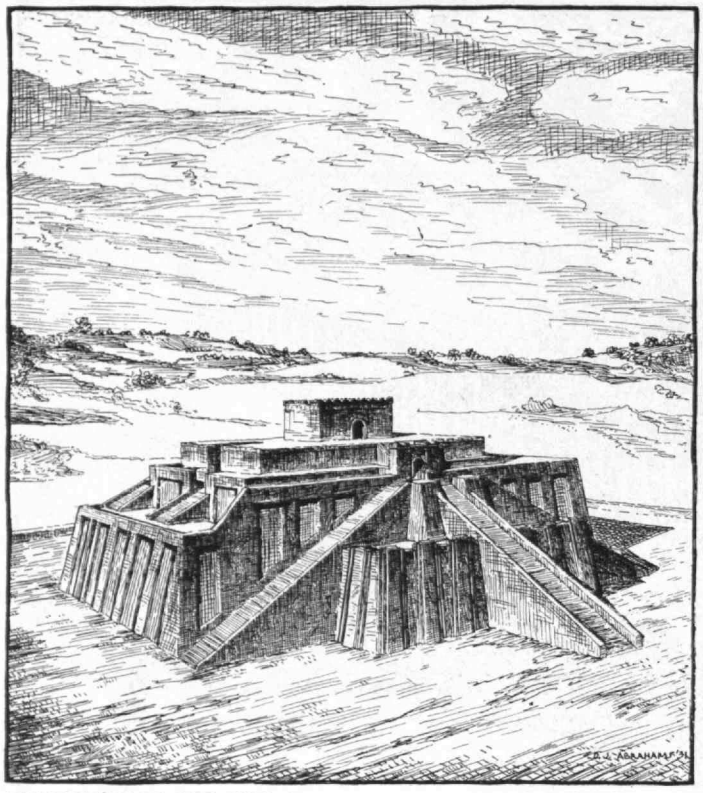
See page 434

OF ALL the work done by our ancestors, there is nothing which tells more of their character, their culture, or their development than the remains of the activities of their building constructors. As soon as man discovered the advantages of village life and began to build a permanent home for himself, the builder became an essential figure in society, and his importance has grown with the increasing complexity of the lives of the people he has served. In the very name by which they called themselves, the Iroquois Indians have left us a clear indication of the status of the builder in the early stages of culture. To the Iroquois, his race was the "People of the Long House," and a study of the Long House tells almost the entire story of the people who lived in it.

And so it has been throughout the history of our own race. The pyramids of the Aztec, the Mayar and the Inca, of the Egyptian and the Chaldean, express in building stone the loftiest aspirations and the keenest ambitions of those people as interpreted by their masons. To the builder, Greece is best illustrated by its temple construction, Rome by its concrete and its arches, and medieval Europe by its Gothic cathedrals.

It is unfortunate that the builder has remained inarticulate, and has refrained from perpetuating his emotions and ideals in print. Others, whose work is important chiefly because of their influence on the builder, have filled libraries with their comments and observations on construction, but the man who has been actually doing the work has been too busy, or has lacked the inclination, to record his activities. As a result, the builder of today does not profit, either in precept or inspiration, by the achievements of his predecessors. The little information he has is usually doled out to him by a group of writers whose real object seems to be to claim for their own profession any glory arising from the construction of the past, and to assign any blame to the nameless and unhonored builder.

Occasionally, some writer has come forward to assert the importance of the builder, to claim for him his place as the heir of a line of workers as interesting and essential as any other, and to proclaim that the work of the building constructor has always been the expression of the highest abilities of a people, a work truly indicative of their culture and their development. Ruskin

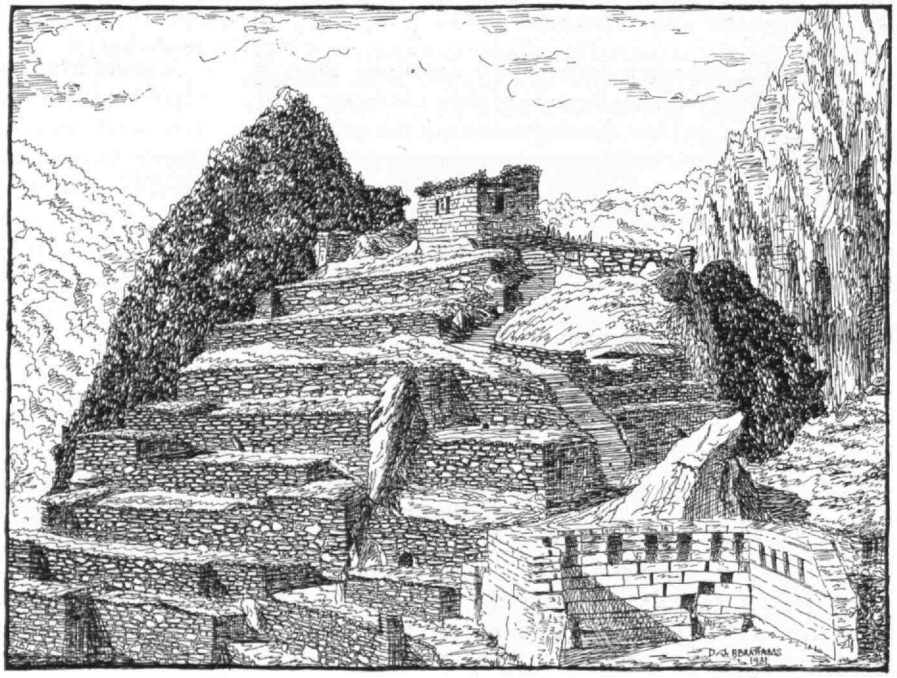


ZIGGURAT AT UR : : ASSYRIA :

preached this gospel to the Nineteenth Century, August Choisy has left us his wonderful studies of the construction of the past, and Englebach is today showing Egyptologists that the best method of understanding the early Egyptians is through the study of their quarry methods and the works of their masons. But one was an abstract thinker, one an engineer, and the third an archæologist, and none of them a builder speaking for his profession. When the builder does tell his story, as John Smeaton did 200 years ago, or as Colonel Starrett has recently, the light they shed emphasizes the general darkness covering the subject.

IT WOULD seem, then, that we need a History of Construction. Its preparation would be a fascinating task, presenting unexpected difficulties, yet opening up equally unexpected vistas of information. Research into this field should include two main sources of facts: texts of general history, and the specific histories of the arts and professions. Each has its advantages; each has its weaknesses. The general history usually deals with the political phases of man's growth, marshalling long lists of dates and dynasties which soon, by their very dullness, dry up any desire to read further. But it gives the necessary background for the study of construction, and points out the relationship between the works of the builder and the other activities of his time. The histories of the arts and professions are valuable in that they give more specific information than political history, but their specialization is apt to create a biased viewpoint; and until recently they have been mostly esoteric works, too technical and profound for the layman and useful chiefly as textbooks and works of reference.

If the proposed History of Construction is to make its greatest appeal, it should be prepared for those who like to read history, but who have neither the time nor the inclination to ferret it out from the type of books just mentioned. The best medium of presentation would probably be the new method of "story" telling, initiated by Mr. Wells in the "Outline of History." Since the "Outline" there has been a long list of "stories" of this and that, with each writer showing how the race has developed by examining the growth of the interest he himself holds paramount. Thus we have the Story of Philosophy, of Science, of the Bible, of Architecture, of Music, and of many more. Into this group fall such books as Paul de Kruif's "Microbe Hunters," which gives a series of biographies of great bacteriologists; James A. Tobey's "Riders of the Plagues," which describes man's advance in the light of his achievements in sanitation; Magoffin and Davis' "Magic Spades" (the authors call it the "Romance of Archæology"); and many others whose real identity as a "story" book is hidden behind an alluring title. If accurate, these books are very well worth while. Everybody has his individual interest, and the deeper he burrows into it, the less his chance of understanding the many other phases of the work of his fellows. If the volume is readable, and short enough for the time most of us can afford to devote to bacteriology or archaeology, it opens up a new field formerly closed.



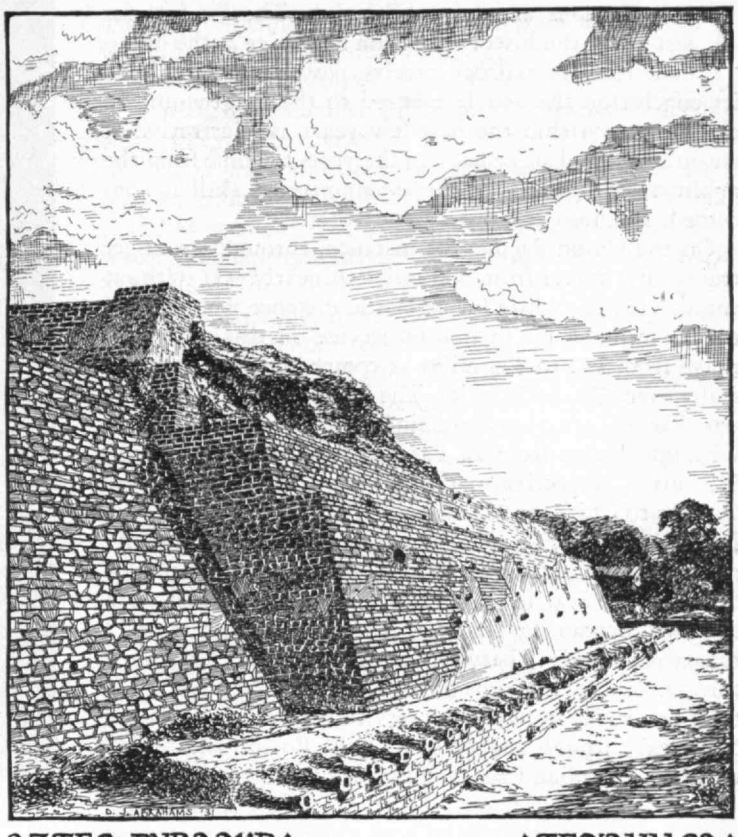
INCA ARCHITECTURE AT MACHU PICCHU : : PERU :

There is one point on which all the "story" tellers agree: they are unanimous in the thought that to understand mankind, one must have a thorough understanding of their particular subject. "Art," says C. Howard Walker, "is the measure of civilization." Fleming and Brocklehurst disagree with Mr. Walker, claiming that "the history of engineering is the history of civilization." Dr. Howard W. Haggard in "Devils, Drugs, and Doctors" looks at the matter in still another light. He says that "the position of Woman in any civilization is an index of the advance of that civilization; the position of Woman is gauged best by the care given to her at the birth of her child. Accordingly, the advances and regressions of civilization are nowhere seen more clearly than in the story of childbirth." And who is there to dispute any of these writers? To the artist, the state of a nation's art is the surest index of its development; the mechanical engineer looks to the condition of its turret lathes; the doctor to its obstetrics; and each finds the answer he is seeking.

But with this acceptance of a common starting point, all agreement between the "story" tellers ends. They are specialists, frankly looking at things in one light, and as frankly disagreeing with each other on most of the things they examine. Man has not developed evenly along his entire intellectual front, and at any given period may have carried one phase of his growth forward while allowing some other to lag behind. If one of these writers attempts a dissection of the men of a time during which his own subject is flowering, the period is one of progress and power; but if the age is one when his hobby is being neglected, the picture becomes dark indeed.

Take, for example, those centuries called (by some) the Dark Ages. Dr. Will Durant, in the "Story of Philosophy," skips from Aristotle to Sir Francis Bacon, indicating what he thinks of the mental attainments of the men of the intervening years. Dr. Thompson, in the "Story of Science," sees an utter lack of scientific progress in medieval Europe and agrees with Dr. Durant. But Dr. James J. Walsh, who is surely entitled to as much credence as anybody on the subject, shows the other side of the story in the very title of his book, "The Thirteenth, the Greatest of Centuries." Ralph Adams Cram and Russell Sturgis, historians of architecture, look at the waxing of Gothic architecture in the Thirteenth Century and feel that there is much to say in favor of Dr. Walsh's contention. And now comes Dr. Tobey, who investigates this same century and finds it absolutely Stygian, as indeed any public health officer must, when he remembers the terrible epidemics which raged even as the wonderful towers of the great cathedrals were being raised to the greater glory of God.

And so the Thirteenth Century was dark or luminous depending upon the viewpoint of the observer. Where the balance should swing, weighing the blossoming of the Gothic cathedral, the work of St. Louis the Monarch, St. Francis the scholar, and Dante the poet against the stagnation of philosophic and scientific thought and the absence of sewers, is far beyond the judicial powers of a builder to decide. Let each judge (*Continued on page 464*)



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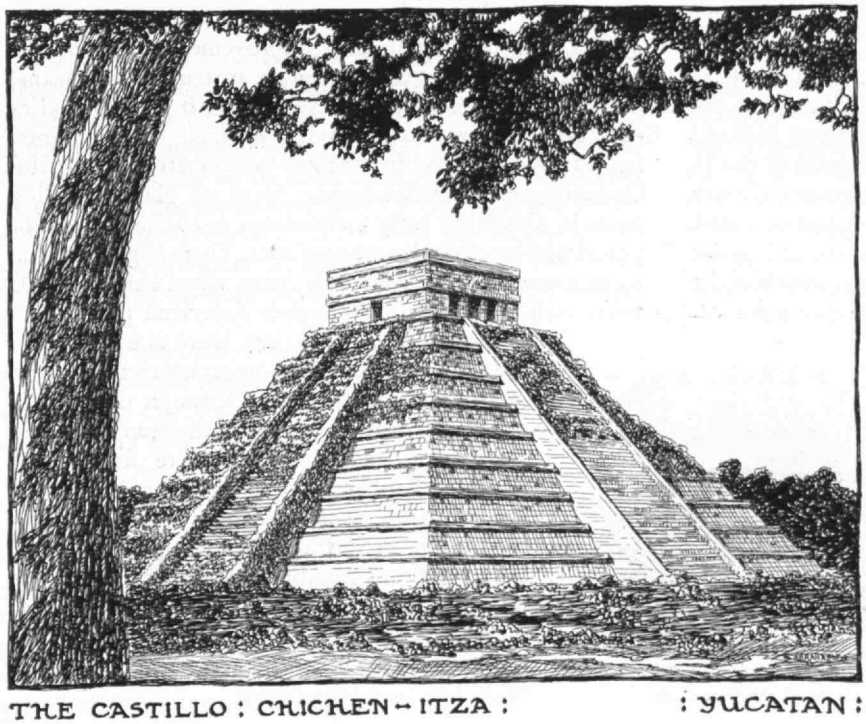

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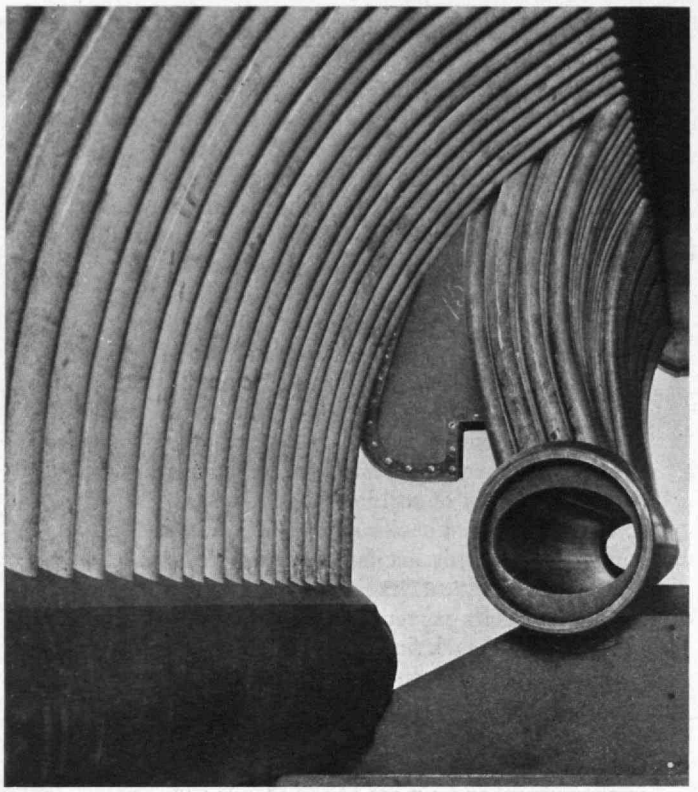


THE BOILER OF THE LONDON AND NORTHEASTERN HIGH PRESSURE STEAM PRESSURE OF 450

STEAM'S FUTURE

The Locomotive Today Stands Ready to

By Harold

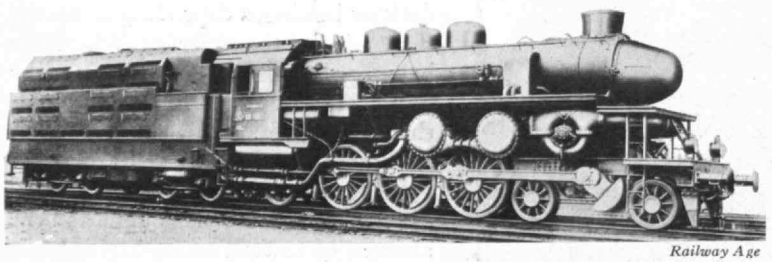
See

IN A previous article, published in The Review for last May, the history of steam's prestige as the dominant form of railroad motive power was traced. At its conclusion the article referred to the lengthening of engine runs within the past few years as illustrative of steam's destined supremacy in the years to come from the application of what, so far as engineering skill is concerned, has been at hand a long while.

On the Union Pacific, for instance, through passenger trains now travel from 500 miles to nearly 900 without engine change, while formerly the distance was but 100 to 175 miles. Runs in freight service on this road now range from 162 to 325 miles as compared with previous shifts every 75 to 150 miles. The Santa Fe and the Southern Pacific are now running passenger locomotives without change from El Paso to Los Angeles, 815 and 888 miles, respectively; the Illinois Central from New Orleans to Chicago, 922 miles; the Northern Pacific from Jamestown, N. D., to Missoula, Mont., 904 miles. At present, passenger service on this last-named road between St. Paul and Seattle (1,904 miles) is accomplished with but two locomotive changes, whereas five years ago 13 runs were in effect between these terminals. Also some through locomotive runs have been established over more than one road: in passenger service between Boston and Montreal through coöperation of the Boston and Maine with the Canadian Pacific and with the Central Vermont and the Canadian National; for coal traffic by the Reading and Western Maryland; in both freight and passenger service by the Reading and the Pennsylvania and by the New Haven and the Boston and Maine.

It is not difficult to understand how extending the runs operates to reduce the needed number of active locomotives required to cover a prescribed territory; to cut down the number of layover terminals; and to strike a body blow at the pertinacious doctrine of the "assigned" engine, a philosophy endemic in the old-time operators. The time is past when a locomotive can be run only by a certain engineer and fireman and must be bunked in a roundhouse when its particular crew is off duty.

Nor does it require extraordinary sagacity to visualize the import of a feat like the following: Last August the St. Louis-San Francisco took a newly delivered Mikado from Baldwin and successfully ran it 9,743 miles in the 31 days of that month in freight service between Kansas City and Birmingham, handling an average of 2,661 tons. The engine was operated by 80 crews and under steam continuously 740 hours (but four hours less than the whole month of August) without having its fire drawn.

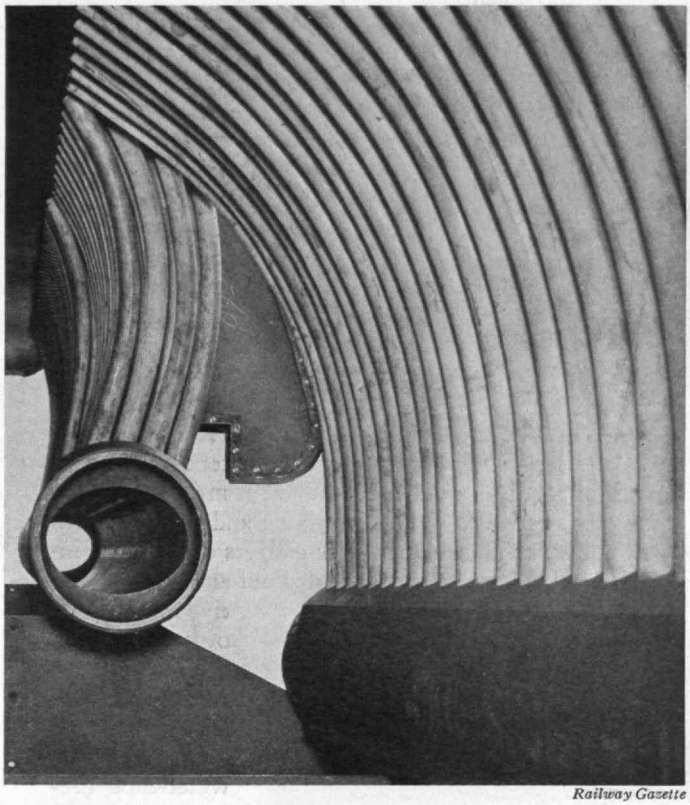


Railway Age

KRUPP-ZOELLY TURBINE LOCOMOTIVE ON THE GERMAN STATE RAILWAYS. IN PRACTICE IT HAS SHOWN ECONOMIES IN FUEL AND WATER

The benefits derived from improvements in the combustion of fuel by an enlarged grate area and other means, from the cast steel locomotive bed with integral cylinders eliminating many heavily strained bolted joints, from larger tenders, from more careful attention to lubrication and to water supply, have all played leading parts in dispelling early forebodings as to the wisdom or practicability of the lengthened runs. There is good reason to suppose that the time will come when runs of 2,000 miles will be accepted, up-to-date American practice.

Concerning lubrication, there is no question that it is an extremely important consideration in the successful running through of locomotives, and a more general adoption of forced feed for cylinders and Alemite fittings for boxes and other parts is to be expected. But it is not true, as is sometimes asserted, that a revolution in lubricating methods has made the longer runs possible. Instead, the provisions for adequate engine lubrication were available for many years, although not always used until the desire for stretching out the runs made their adoption imperative.



Railway Gazette

WATER-TUBE 4-CYLINDER COMPOUND LOCOMOTIVE. IT DEVELOPS A LBS. PER SQUARE INCH

ON THE RAILROAD

Fulfill the Motive Problems of Tomorrow

E. LOBDELL

page 436

Feedwater, its quality and preparation, though less frequently mentioned, is a feature probably as responsible as any single factor. In years past it was not unusual for connecting divisions of a railroad to have such different qualities of water as to make it practically impossible to operate locomotives over both. If fed with the softer waters of one division, a locomotive, previously scaled with the hard waters of another, often had this scale loosened with resultant leakage, poor steam, and engine failures.

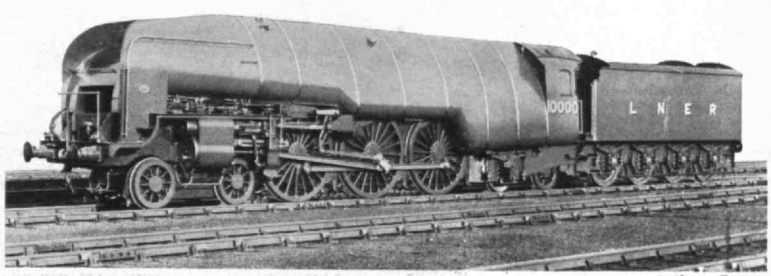
Some of the worst natural water in the United States for steam locomotives lies along the route of the Northern Pacific, especially in the territory of its 904-mile run. To overcome this condition water softening plants, employing the lime soda ash process and the zeolite, have been installed. Through this treatment there is obtained an appreciable amount of sodium and potassium carbonates which are commonly associated with foaming troubles, so enginemen are required to blow down their concentrates periodically and to use castor oil emulsion to allay foaming. Thus the Northern Pacific's water problem seems to be working out satisfactorily and, on the basis of further experience, more progress is to be anticipated.

In all steam locomotive services this matter of getting clear, soft, uniform water is a prime topic. Its bearing on the life of flues and fireboxes can be seen in the maintenance records of the Chicago and Northwestern, which road has been engaged in an intensive study of the feedwater problem for upwards of ten years. In 1911 it had 787 failures from leaky flues, or one per 58,633 locomotive-miles; in 1929, it had only 11 such failures, or one per 4,343,302 locomotive-miles.

For some time the efficacy of roller bearings on leading truck axles has been admitted and, beginning in the spring of last year, their applicability for use in driving boxes has been rigidly tested in a 4–8–4 engine built by the American Locomotive Company for the Timken Roller Bearing Company. On it roller bearings were applied to trucks, drivers, trailer, tender, booster, headlight generator, valve pilot and flue blower. The specifications were a compromise between the current prevailing design practices for freight and passenger services in order that the demonstration engine might be loaned to several roads for test operation under numerous service conditions.

On the basis of its first six months of experience, during which it hauled all sorts of trains upwards of 50,000 miles on the Pennsylvania, New York Central, and Chesapeake & Ohio, it is claimed that roller bearings can stand up and give service free from maintenance troubles, while their extra cost is not prohibitive. The results with this engine seem to prove that the roller bearings, operating in a bath of oil, do not require attention more often than quarterly or semi-annually, which bears out the experience with some 160 other locomotives on which some wheels have been equipped with roller bearings.

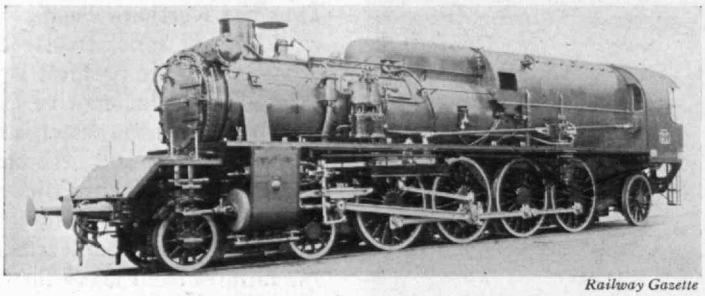
The possibility that this Timken locomotive may indicate the way to a combination engine for freight and passenger service, except for heavy drag coal and ore service, is of tremendous significance to the carriers. Such an interchangeable motive power unit possesses intriguing possibilities for reducing capital investment and its suggestion comes at a most propitious time. Up to the War the railroad people had been accustomed to buy in a manner, which, in retrospect, seems reckless, but their major problem, as they saw it, was to finance the expansion which they deemed necessary. They proceeded, actuated by the well-founded hunch that the country would grow up to almost any additional facilities



Railway Gazette

EXTERIOR VIEW OF THE "HUSH-HUSH" LOCOMOTIVE, THE BOILER OF WHICH IS SHOWN ABOVE. NOTE THE NOVEL CONSTRUCTION DESIGNED TO DEFLECT THE SMOKE UPWARD AND TO CUT DOWN WIND RESISTANCE

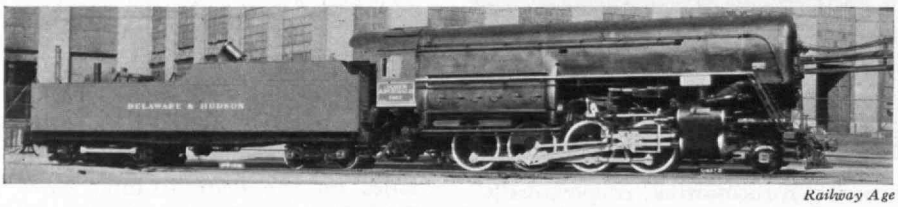
and, between 1890 and 1920, freight traffic increased 60% to 80% each decade, while passenger business, in terms of passenger-miles traveled, increased even more than the freight, doubling itself between 1900 and 1910.



Railway Gazette

ULTRA-HIGH-PRESSURE 4–8–2 EXPRESS LOCOMOTIVE BUILT BY HENSCHEL & SOHN IN COLLABORATION WITH THE GERMAN SCHMIDT SUPERHEATER COMPANY FOR THE PARIS-LYON-MÉDITERRANÉE

During the ten years following the War the marked influence of motor trucking, waterways and pipe lines on freight movement and of private automobiles, busses, and airplane services on passenger business have been so thoroughly elaborated in the public prints as to need no further emphasis here. So, faced with a growth in freight traffic since 1920 of less than 10% and with a decline of a third in passenger business (approximately $400,000,000 per annum), it is apparent why the railroads are now attentive to any reasonable proposition whereby pooling of motive power for use in either service may be brought about.



Railway Age

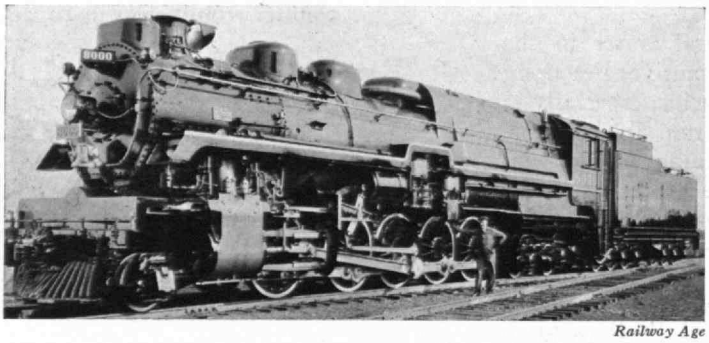
THE "JAMES ARCHBALD," THIRD OF THE SERIES OF HIGH-PRESSURE LOCOMOTIVES WITH WATER TUBE FIREBOXES, DESIGNED BY J. E. MUHLFELD AND BUILT BY THE AMERICAN LOCOMOTIVE COMPANY FOR THE DELAWARE AND HUDSON. LIKE ITS PREDECESSORS, THE CYLINDER ARRANGEMENT IS CROSS-COMPOUND. TOTAL WEIGHT: 356,000 LBS. OF WHICH 300,000 IS CARRIED ON THE DRIVERS. MAXIMUM TRACTIVE FORCE: SIMPLE, 84,300 LBS.; COMPOUND, 70,300 LBS. TENDER EQUIPPED WITH BETHLEHEM AUXILIARY LOCOMOTIVE, OR BOOSTER, WHICH REPLACES REAR TENDER TRUCKS AND EXERTS A TRACTIVE FORCE OF 18,000 LBS.

Any further and complete enumeration of the developments in locomotive design, which have passed the experimental stage and have met the test of service conditions, is beyond the scope of this article. But two points may here be mentioned as illustrations: the increased carrying capacity of tenders which, besides saving time by eliminating long stops for rewatering and refueling, has thereby lessened the chances for break-in-two's when stopping and starting heavy freights; and the air compressing plant which has undergone several steps for improved efficiency of output as well as capacity to care for the ever-increasing use of air for auxiliaries such as brakes, sanders, bell ringing, fire-door engines, reversing gear, ash-pan engines, grate shaker, and water scoop.

Although compared with the progress in other branches of steam engineering, the steam locomotive may have appeared backward in adopting many devices which have long been standard practice in industrial plants, the answer is, of course, to be found in its inhibiting physical limitations. Contrasted with an industrial plant of 4,000 horsepower, the locomotive in American practice must confine itself to a width of 10½ feet, and in height must conform to a clearance requirement of 22 feet, or, in some states, of 18 feet. In practice, 16 feet is the maximum height to which a locomotive may be built for western roads in the United States and 15 feet for eastern roads. Its length and weight must be kept within the bounds of roadbed, rails, and bridges; it must be mobile; it must be rugged to withstand shock and vibration. An extra boiler, or pumps and other gadgets common to industrial and marine plants, are ruled out and the locomotive must lug its own coal pile.

Nevertheless, some progress has been made to try out the water-tube firebox and to apply the turbine. Both are to be counted among the cards which steam has up its sleeve to reaffirm its prestige in the years to come when, on the basis of fuel economy, detrimentally higher first costs, and complications of design may be offset.

Boiler pressures, which were generally limited to 150–160 pounds up to the time when steam was ousted from the Baltimore tunnels in 1895, advanced soon thereafter to 200 pounds for a prevailing practice and then rose gradually to 250–275 pounds as shown by the table on page 381 in the May Review. Today pressures on locomotives of the conventional type, with barrel boiler and stay-bolted firebox, do not commonly range above 275 pounds although the Delaware and Hudson Company has built an engine with a maximum of 325 pounds, for which the American Locomotive Company constructed the boiler. Baldwin has also delivered one to the Santa Fe with 300 pounds as its limit.

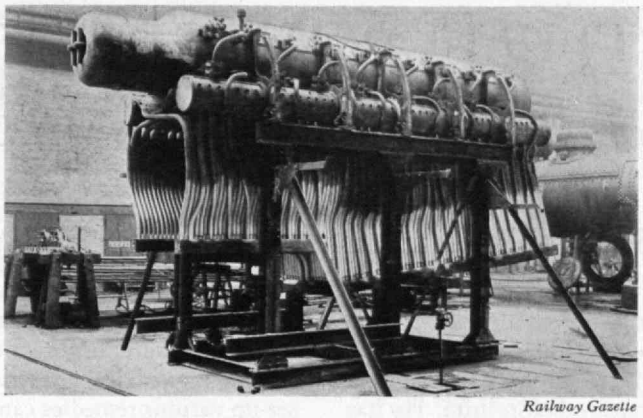


Railway Age

CANADIAN PACIFIC DOUBLE PRESSURE 3-CYLINDER OIL BURNING LOCOMOTIVE EMPLOYING THE SCHMIDT METHOD OF INDIRECT STEAM GENERATION. IT HAS A TRACTIVE FORCE OF 90,000 LBS.

Immediate further increase of working pressures in this type of engine is unlikely, for the Interstate Commerce Commission does not permit stay-bolt stresses greater than 7,500 pounds to the square

inch, which ruling precludes taking benefits from the use of improved materials. Though the carriers are agitating for a higher stress allowance, which could be satisfactorily withstood by alloy steels, the Commission so far has stood pat on the "safety-first" argument that in repair work done by the railroads it is likely regular material would be used in replacing broken bolts.



Railway Gazette

ULTRA-HIGH-PRESSURE BOILER OF THE COMPOUND EXPRESS LOCOMOTIVE BUILT BY HENSCHEL & SOHN FOR THE P-L-M SEE PAGE 473

American experience with water-tube firebox has so far been limited to about four experimental locomotives: Baldwin's No. 60,000 of 1926, using 350 pounds pressure, water-tube firebox, fire-tube boiler and three cylinders compounded; the three of the Delaware and Hudson's series built in 1924, 1927, and 1929, by the American Locomotive Company, using pressures of 350, 400, and 500 pounds, and named, respectively, *Horatio Allen*, in honor of the operator of the *Stourbridge Lion; John B. Jervis*, after the chief engineer of the Delaware and Hudson Canal Company; and *James Archbald*, after an early associate of Jervis. Their fireboxes have all been part of a single-pressure generating system; that is to say, the entire steam generator has carried but one steam pressure. Some details of the *James Archbald* accompany the illustration on page 450.

All these locomotives have shown a high thermal efficiency and have made excellent records in fuel economy, as would be expected. Of course, compound cylinders and water-tube fireboxes, which emphasize the problem of the fatigue of metals in the firebox due to the expansion and contraction caused by temperature and vibration, increase the tendency toward more failures and higher maintenance. Just how soon the use of special steels and revised design practice may be expected to lick these impedients is an open question.

Abroad, the higher cost of fuel and lower cost of labor, as compared with conditions here, have coped more easily with inertia against giving the new type a trial. There the Schmidt principle, using two pressures, has been tested with success by the *Deutsches Reichsbahn* and also in an experimental locomotive (*Continued on page 473*)

M. I. T. Photo

COMPLETE MINIATURE RAILROAD SYSTEM BUILT BY STUDENTS OF THE COURSE IN RAILROAD OPERATION AT TECHNOLOGY. THE SYSTEM INCLUDES APPROXIMATELY 200 FEET OF 2½ INCH GAUGE TRACKAGE. MORE THAN 2,000 FEET OF WIRE WAS NECESSARY FOR THE VARIOUS SIGNALS CONTROLLING THE MOVEMENT OF THE TRAINS. BLOCK SIGNALS, AUTOMATIC TRAIN CONTROL DEVICES, HIGHWAY CROSSING DANGER SIGNALS, AND OTHER MODERN RAILROAD DEVICES OPERATED PERFECTLY WHEN THE SYSTEM WAS DISPLAYED AT THE ANNUAL OPEN HOUSE OF THE INSTITUTE ON MAY 2

MINIATURE POWER SYSTEMS

How Vast Electrical Transmission Networks Are Duplicated and Studied in a Laboratory

By Samuel H. Caldwell and Harold L. Hazen

See page 436

MANY times during the past year a power-system engineer has sat down in the Electrical Research Laboratory of the M. I. T. with his system electrically reproduced in miniature before him. He has operated the system with the important meters of widely separated stations brought together on a single table, and has observed the effects of projected changes and additions. This has been accomplished by means of the M. I. T. Network Analyzer, which was introduced for use by power companies in January, 1930. It is a group of resistors, reactors, condensers, and phase-shifting transformers, sufficiently numerous and flexible so that practically any power system can be electrically reproduced in miniature, and thus in effect brought into the laboratory for study and precise measurement.

M. I. T. Photo

GARGANTUAN POWER SYSTEMS ARE REDUCED TO LILLIPUTIAN DIMENSIONS. THE M. I. T. NETWORK ANALYZER WHICH OFFERS, IN A SINGLE ROOM, MEANS FOR MAKING ACCURATE TESTS ON TRANSMISSION LINES AND EXERCISING QUANTITATIVE FORESIGHT IN PLANNING POWER SYSTEM GROWTH AND DETERMINING OPERATING POLICIES. IT IS AVAILABLE TO THE ENGINEER OF ANY COMPANY FOR USE IN SOLVING HIS NETWORK PROBLEMS; DEFINITE PROBLEMS CAN BE HANDLED BY THE STAFF

After this year's experience in coöperation with various system engineers, it is now possible more definitely to state the types of problems on which the Analyzer is useful, and the ways in which it can be made most directly of service.

The engineer whose business it is to design and operate a modern highly organized power system is already aware of the specific electrical problems which he encounters on such a system, and any catalogue of them would be superfluous. Satisfactory means for their solution, however, is often wanting. Neither direct computations nor the direct-current calculating table prove generally useful for problems of normal operation, good as they are for approximate short-circuit studies. Consequently, a discussion of some of these problems, which shows how the Network Analyzer is adapted to answer many of these questions with which the engineer is seriously concerned, may be of interest.

A frequently encountered problem arises due to the normal growth of load on a system, that of determining how the system will behave when additional load is applied. The determination of what portions of the system may become overloaded and the extent to which it will be necessary to relieve such portions is often very difficult. For example, some previously unimportant small tie line in a system may suddenly become a limiting factor and make reinforcement of the line necessary.

With the system set up on the Network Analyzer such a situation admits of direct measurement. Not only is the trouble immediately observed, but without changing the set-up various remedies can be tried to determine the best way of relieving the difficulty. A desirable remedy may take the form of a phase-shifting transformer; on the Analyzer it requires but a few operations to insert the transformer, observe its efficacy, and determine the required rating. The important question of voltage regulation under new conditions can be answered by a set of voltmeter readings taken systematically throughout the network almost as fast as the data can be recorded. Synchronous condensers and tap-changing transformers can be installed in the miniature system, their effects measured, and the required ratings determined.

Also included under the general problem of system growth is the case where new territory is to be covered, involving the construction of new lines, substations, and even generating stations. System extensions are studied on the Analyzer by plugging in additional units to represent them and making instrument readings at significant points in the network. The selection of the design of proposed extensions is facilitated by the measurement of system performance made with the units adjusted to represent each of the various alternatives in turn. All phases of the problem can be examined with the same accuracy as on the actual system but with one very significant difference — on the actual system the physical equipment must be built and installed before any data can be obtained, while on the Network Analyzer the future form of the system can be duplicated just as exactly as its present form, and complete knowledge of its extended characteristics is made available through what amounts to actual operating experience before the construction is undertaken.

The system engineer is often prevented from investigating new ways of operating a system because of the risk of interrupting service. No matter how sure he may be of the advantages to be derived from changes in the method of operation he cannot undertake experiments unless he is sure that continuity of service will be maintained during and after the change. The Network (*Concluded on page 476*)

THE TREND OF AFFAIRS

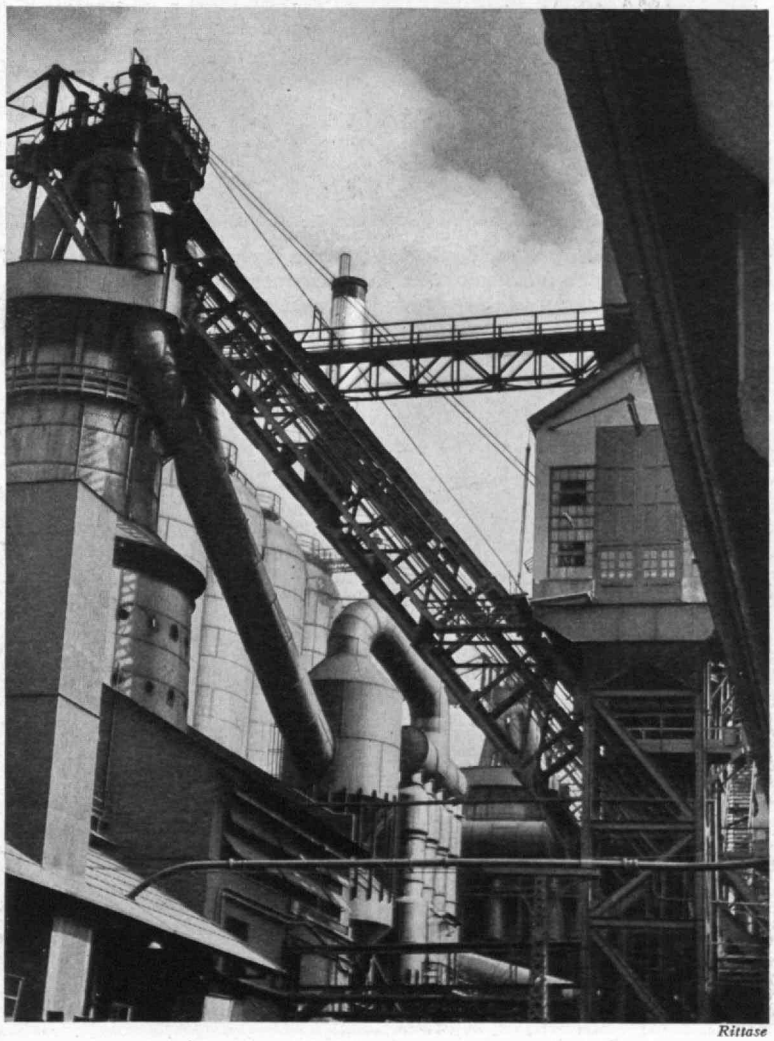
IN THIS SECTION

The A. I. of P.

THERE was recently announced in the press the establishment of the American Institute of Physics for the better organization of physicists in diverse fields, and for the better handling of the problems of publication. Dr. Karl T. Compton, President of M. I. T. and this year a recipient of the Rumford Medal, has been elected Chairman of this Institute, and Professor George B. Pegram, Head of the Department of Physics and former Dean of Engineering of Columbia University, is Secretary. In working out this plan, the Institute will have the benefit of the experience of the Chemical Foundation in matters of scientific publication, as well as the financial assistance of the Foundation in getting the new system of publication under way.

In a memorandum prepared for The Review, Dr. Compton adds significant details to the facts already published. The Institute of Physics is an outgrowth of several years' study of publicational and organizational problems of physicists by two committees of the American Physical Society, one a committee on the financing of publications, under the chairmanship of Dr. Compton, and the other a committee on relationships with the other societies and groups, under the chairmanship of Dr. Paul D. Foote, Director of the Research Laboratories of the Gulf Oil Company.

The organization problems of the physicists are in a certain sense peculiar and different from those, for example, of the chemists. Whereas the men who carry on the important practical applications of chemistry are still called chemists or chemical engineers, the men who are carrying on the practical applications of physics are now largely enrolled in separate, specialized groups of engineers: electrical, mechanical, radio, aeronautical, and so on. Consequently, there is much less solidarity among those who are working in pure and applied physics. In order to bring about closer contacts with all of these groups and to prevent further disintegration into numerous separate groups, as has recently been suggested by men in newly important lines of industrial physics, this new organization has been created.



Rittase

AT THE PLANT OF THE FORD MOTOR COMPANY IN DETROIT

The American Physical Society, the American Optical Society, the American Acoustical Society, and the American Society of Rheology, have agreed to coöperate in the formation of the A. I. P. Other groups, such as the American Society of Physics Teachers, and various professional societies, have also expressed an interest in joining this organization as soon as its plans are completed. A governing board, consisting of three representatives from each of the affiliated societies, constitutes the group which is at present actively engaged in perfecting the organization. On this board are the Directors of the Research Laboratories of the Bell Telephone Company and the Gulf Oil Company, as well as prominent research men in the laboratories of the

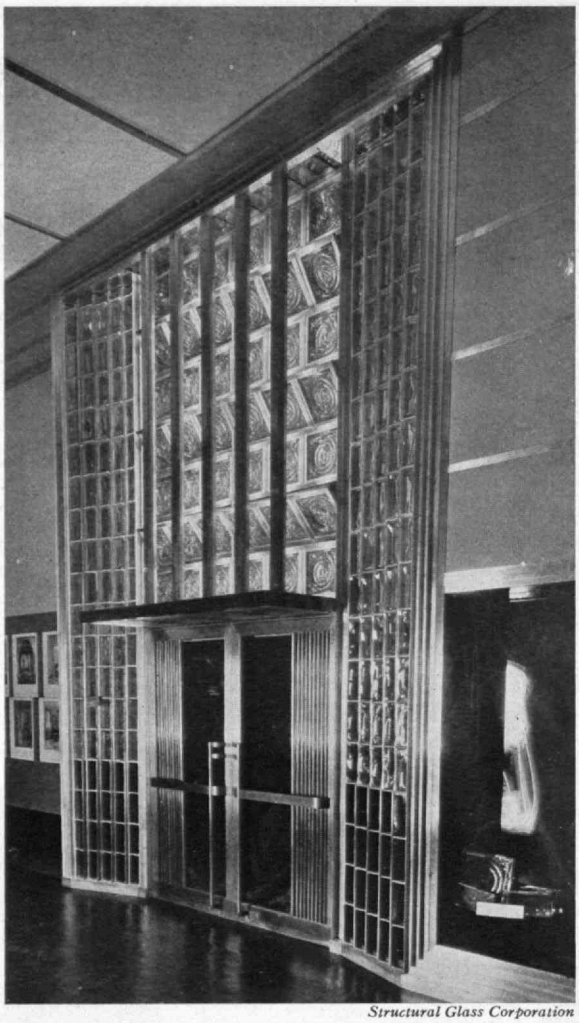
Eastman Kodak Company, the Bell Telephone Company, and various educational institutions. There is also a goodly representation of men who have been prominent as teachers.

The first problem before the governing board of the Institute is the selection of a man to serve as full-time Executive Secretary — a physicist of repute and of proven organizing ability, who will take the initiative in studying and bringing forward plans for reorganizing the management of the physics journals of the country, and who will, further more, be active in establishing local physics clubs, student branches, and similar organizations.

One of the interesting possibilities under consideration is the uniting of a half dozen or so of the more important physical journals under a single editor-in-chief, with each journal retaining its present editor and board of editors. All material published by this group would be published as sections of a single large journal, appearing probably bi-monthly. The sections of this enlarged journal would correspond roughly to the present independent journals. Subscribers wishing to obtain only certain portions of the whole journal would receive those sections in which they are particularly interested, which would be published as reprints suitably bound. In this way, every physicist in the country could designate the particular sections which he is interested in obtaining regularly, and receive those sections bound in a single cover twice monthly. This publishing arrangement would give a maximum of coördination and effective service, combined with a desirable flexibility, and would offer unusual advantages in the matter of advertising rates and economical business management.

One of the most difficult problems of scientific publication is the question of scientific abstracts. The plans of the American Institute of Physics contemplate either a more effective relationship with the present physics abstracting journal (*Science Abstract A*, published in London) on a more adequate international coöperative basis, or else a new abstracting journal.

It is hoped that the name of the Executive Secretary of the Institute may be announced before next fall.

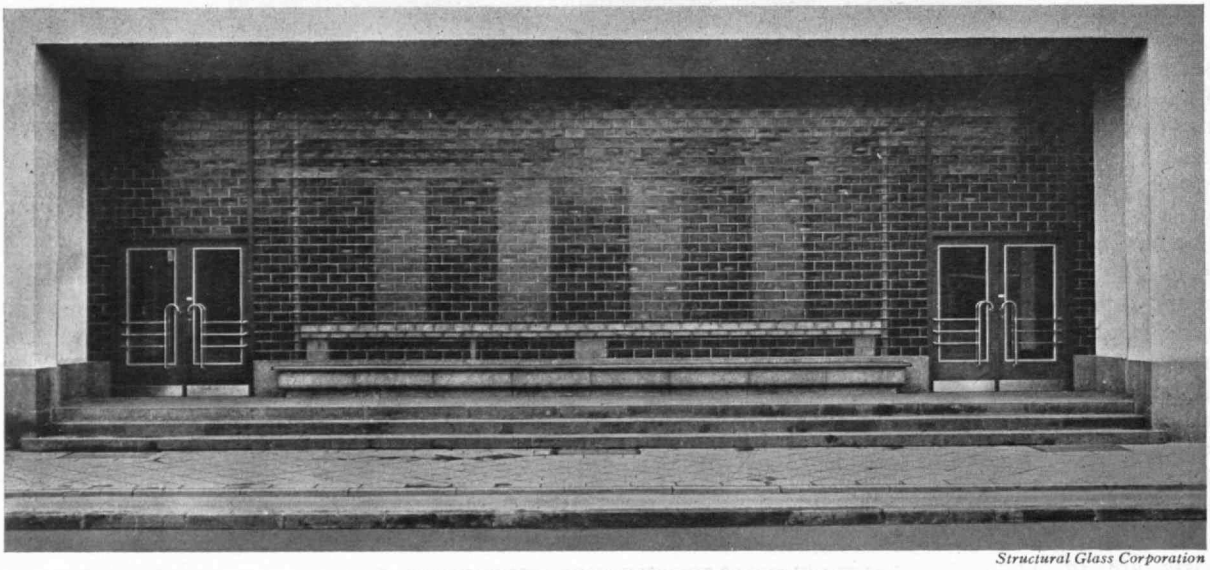


Structural Glass Corporation

GLASS AND METAL BUILDING ENTRANCE LIGHTED BY NEON TUBING. AWARDED GOLD MEDAL AT THE ARCHITECTURAL LEAGUE EXPOSITION IN NEW YORK CITY, APRIL, 1931

Industrial Uses for Tungsten Plate

PROFESSOR COLIN G. FINK of Columbia University has announced the discovery of a process by which a great variety of metals may be electroplated with tungsten. The significance and promise of this discovery, one



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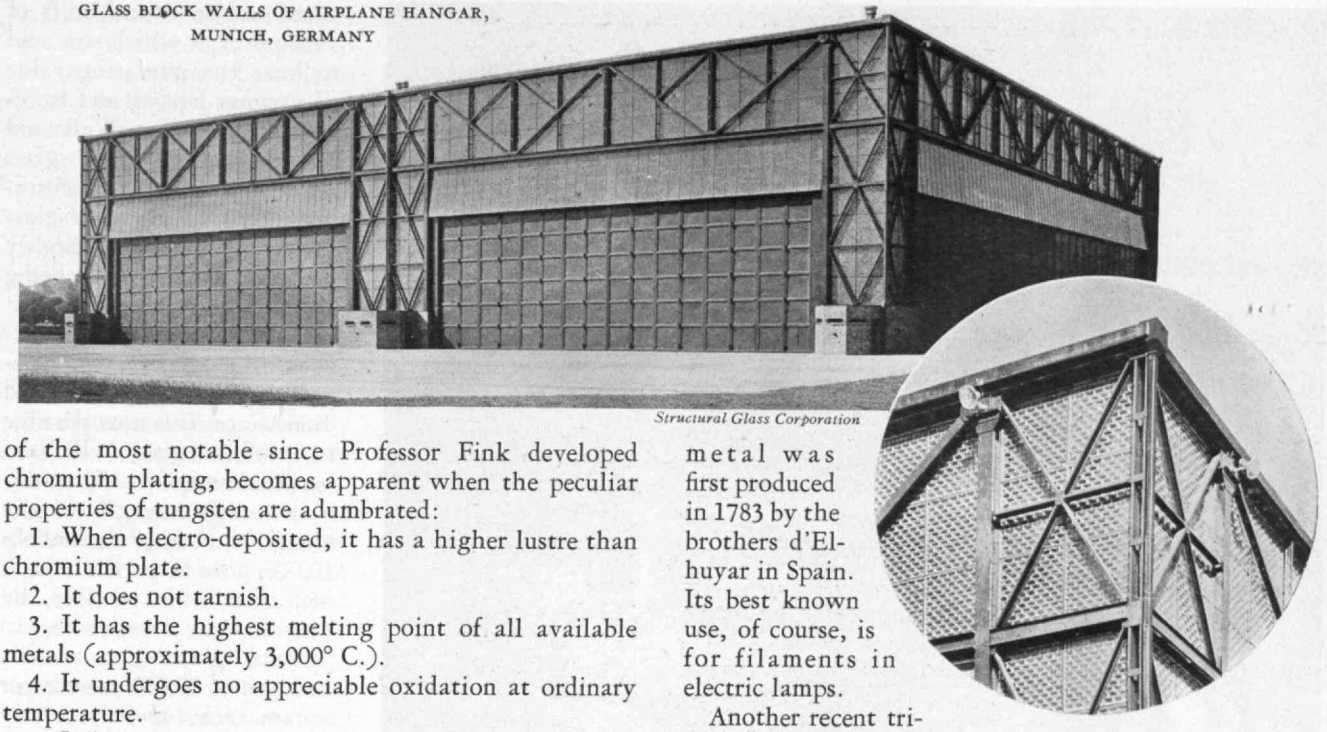
GLASS BRICKS USED FOR SWIMMING POOL FAÇADE

GLASS BLOCK WALLS OF AIRPLANE HANGAR, MUNICH, GERMANY



Structural Glass Corporation

of the most notable since Professor Fink developed chromium plating, becomes apparent when the peculiar properties of tungsten are adumbrated:

1. When electro-deposited, it has a higher lustre than chromium plate.
2. It does not tarnish.
3. It has the highest melting point of all available metals (approximately 3,000° C.).
4. It undergoes no appreciable oxidation at ordinary temperature.
5. It is resistant to the action of acids, neither *aqua regia* nor hydrofluoric attacking it appreciably.

With these properties of tungsten in mind, it is easy to contemplate the manifold uses to which metals with a protective coating of it may be put. Household utensils made of tungsten plate would bring to an end the polishing labors of the housewife. Plated on aluminum, it would furnish an article of lightness and durability.

Its greatest field of utility, however, looms in the chemical industries where resistance to heat and acid is important. A piece of brass which Professor Fink had plated with a tungsten alloy was not noticeably attacked by hydrochloric acid in a week. A coating of any other common metal of equal thickness would have had a life of seconds under similar conditions.

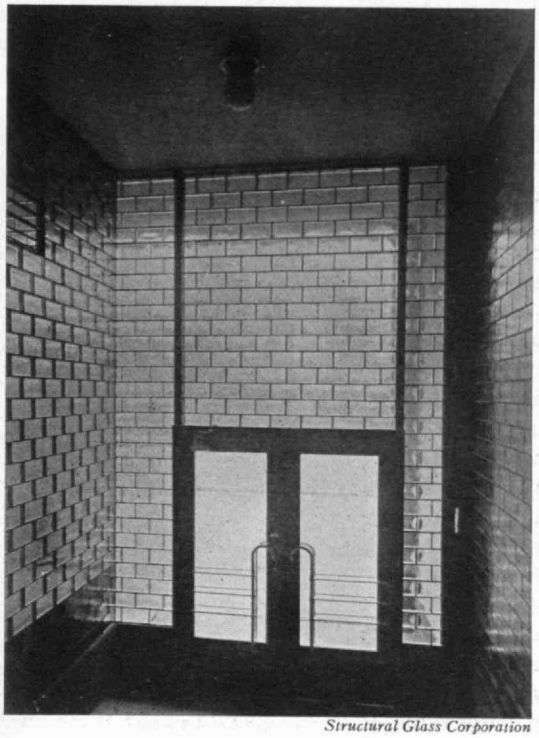
Tungsten's hardness, good heat conductivity, and high melting point make it particularly suitable for electrical contacts and arc points that are subject to extreme temperature changes.

The first attempts to plate tungsten were made by a German chemist, Zettnow, in 1867. He used a bath of molten sodium tungsten, and succeeded in obtaining a tungsten oxide by electrolysis, but he failed to make pure tungsten. The metal was first produced in 1783 by the brothers d'Elhuyar in Spain. Its best known use, of course, is for filaments in electric lamps.

Another recent triumph of the electro-chemist is the electro-deposition of rubber.

Glass Bricks

GLASS has held a place of high importance in architecture for centuries, but not until recently has it been seriously considered as a building material adapted for many types of construction. Structural glass is now being produced in many forms, ranging from tiles of various thicknesses and surfaces, to bricks adapted to comparatively heavy wall and roof construction. Nor does this encroachment in the field of structural materials mean that glass is to lose its position as a means of architectural beauty. On the contrary, structural glass will permit new freedom in architectural design in which the æsthetic sense and practical demands may be completely satisfied in effects conventional or unusual.

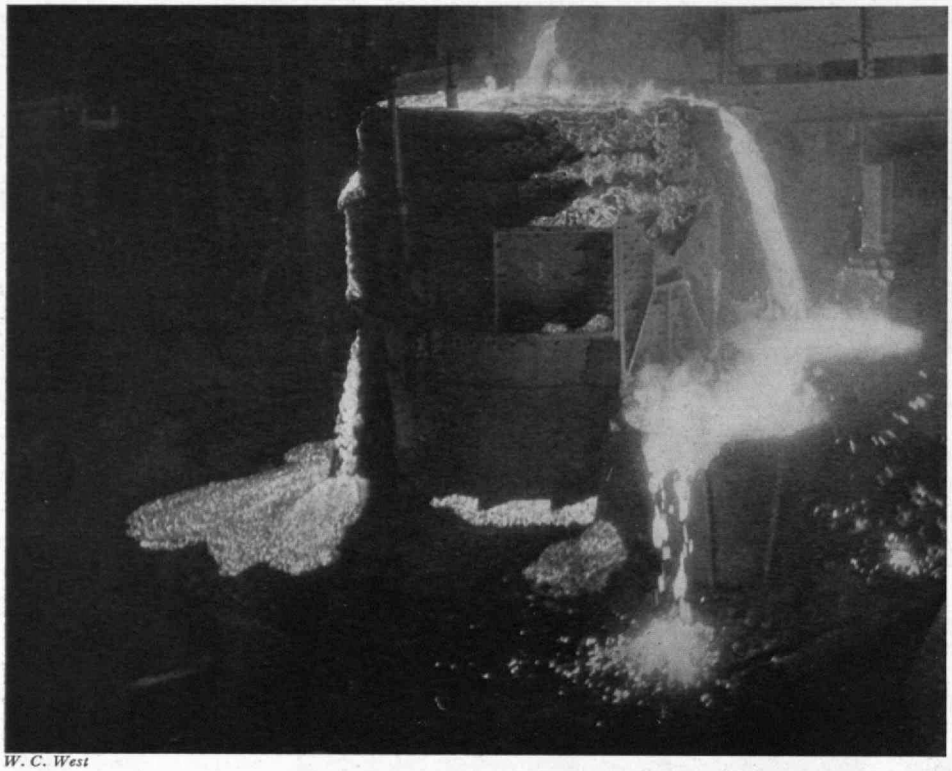


Structural Glass Corporation

ENTRANCE HALL OF SOLID GLASS BRICK

German glass manufacturers have led in the development of structural glass units, which are now being produced in various dimensions and in colors to meet the demands of conventional designs. Solid glass bricks ten inches long, five inches wide, and two and a half inches thick are being made. Other forms of various dimensions are hollow bricks reinforced with wire netting, ribbed hollow bricks, and vacuum blocks.

The surface treatment of the German Luxfer tiles and bricks includes prismatic, pebbled, diamond, and modeled faces designed for diffusion and



W. C. West

controlled refraction of exterior light, or for diffused reflection of interior light. This also avoids the black effect in flat glass at night. The glass is said to have great heat resistance. In roof construction these glass units are supplied in precast panels which have a high bearing capacity, and the individual tiles are designed with a special edge groove in which bitumen plaster is laid to seal vertical joints. Studies are being made to find the best type of mortar to use, this being one of the biggest problems yet incompletely solved.

Insulation in wall panels is secured by building panels of bricks formed of two superimposed parts with a sealed air cavity. Such panels have already been used in exterior as well as interior walls. Electrolytically framed tiles set in copper muntins have also been used in walls, ceilings, and even as fire curtains in large buildings. Panels as large as 16 square feet set in metal frames have been successfully built.

Another development in the use of structural glass is the concrete frame window units. These frames are designed for standard dimensions and are machine made. They are adaptable for heavy sheet glass or for glass blocks or tiles. No painting is necessary and they are fireproof, with a much lower heat transmission than steel.

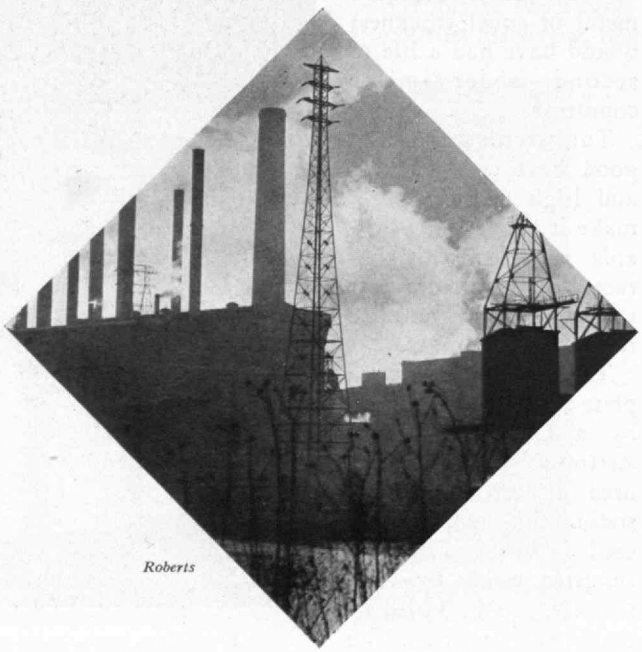
Obviously, the field for structural glass has few restrictions. Germany already has some very striking examples of its adaptability for various architectural designs, including residences, airplane hangars, department stores, offices, and various industrial buildings, such as factories, storage buildings, and power stations.

Investigation of the physical characteristics of glass reveal remarkable qualities. Its composition and surface finish may be designed to meet almost any demand for light control. The thermal conductivity can be varied with structure and density. As for its insulating value, it has remained for European engineers to develop vacuum panes and structural units of vacuum type which are said to have the insulating value of vacuum bottles and to reduce condensation. Walls and windows of structural glass units also eliminate infiltration. Panels built up of glass prism units which are highly fire resistant are now being widely used in Europe.

Glass has remarkable mechanical properties, which depend upon composition and dimensions. It is now possible to produce glass which is harder than quartz. The ordinary tensile strength of the material is approximately 10,000 pounds to the square inch, but it is possible, by special heat treatments, to produce glass of a tensile strength of 50,000 pounds per square inch, or very nearly that of wrought iron. The compression strength of glass exceeds that of granite, concrete, or brick. Architects and building constructors cannot ignore the advantages offered by structural glass. Realizing its great importance, The Review has collected a bibliography which readers may obtain on request to the Editor.

Heaving

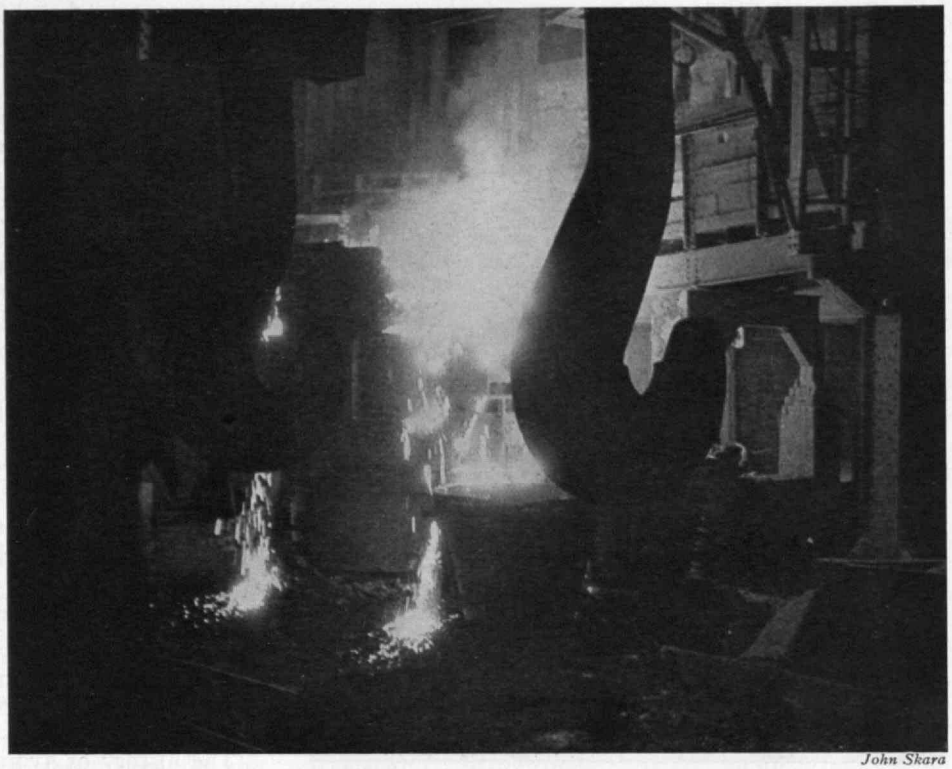
IT IS encouraging to note the growing number of dead cats that are being heaved at the scientists of the advertising offices. They are a pawky group, these modernized medicine men, and worship but one god — the great god Sales.



Roberts

But flushed with a dozen successes, they now appear to be over-reaching themselves. The intelligent public, and even a few members of the advertising fraternity itself, are becoming genuinely perturbed over the bad ethics and worse science so common in the advertising pages of the contemporary press.

One of the best aimed volleys at these sales-at-any-price scientists recently came from the editorial offices of *Printer's Ink*, the stodgy but alert little journal of the advertising profession. Suggesting a "Forget Scientists Week," its Editors said: "Perhaps you have been so foolish as to think that scientists work at the business of science. Not so. They test cigarettes, tell frightened mothers about breakfast food, warn young men against the dangers of something that usually ends with -osis. Now and then, to be sure, they make an epoch-making discovery which will bring about an extended revolution in the manufacture of nine-count, full fashioned galoshes. In short, they are scientists of the advertising pages."



John Skara

The Review in the past has had much to say about these gentlemen and it proposes to say much more in the future if present conditions continue. Particularly has it lamented the exploitation of ultraviolet radiation and its by-product, Vitamin D. Ultraviolet light, properly used and understood, may be a great boon to mankind, but it is silly to call it a cure-all, and quackery to over-value products treated by it.

Photo by Eugene Hutchinson

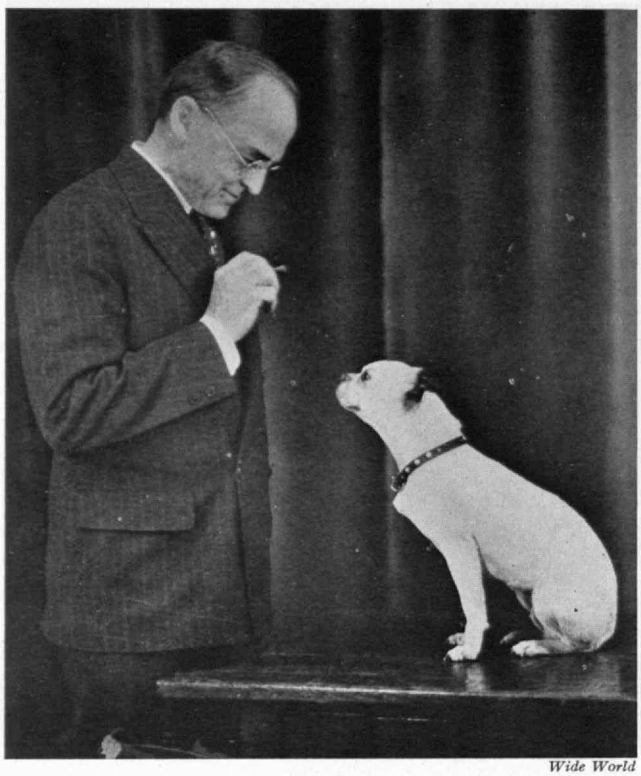
Courtesy of the Colorado Fuel and Iron Company

In the deft hands of the advertising scientists, Vitamin D has been made the modern patent medicine. The public has been urged to preserve its health by eating irradiated cereals and bread, to preserve its comfort by having its laundry irradiated, and its underwear soused with Vitamin D. With perfect health and voluptuous comfort thus constantly available, the public has, in addition, been adjured to make itself beautiful by using ultraviolet face cream to create beautiful skin, and by smoking ultraviolet cigarettes to preserve the sensuous loveliness of the Adam's apple. And rumor is at hand that the public will soon be asked to keep itself clean by using ultraviolet soap.

It is indeed time for the advertising gentry to observe a "Forget Scientists Week," and it might well be followed by a "Forget Ultraviolet Lustrum."

Finger-Prints of the Elements

RECENT newspapers have carried headlines announcing the discovery of the last element, which was found by a new process devised by Dr. Fred Allison, Alabama scientist. The non-chemist will perhaps imagine that the last of Nature's mysteries has been unveiled, at the same time wondering what the new element looks like, what sort of substance it is (gas or glistening metal?), and, after all, how it is known that there are no more elements left to discover? The answers, given with all regard to the truth, will perhaps be disconcerting to him. We do not know what the new element looks like. No one has seen it, or handled it, or possessed it in any palpable form. It is not even certain that it is the last of the elements: we suppose from the evidence that it is probably so, with some hesitation. Nevertheless, if the observations of Dr. Allison are confirmed, chemists will be satisfied that they reveal another element.



Wide World

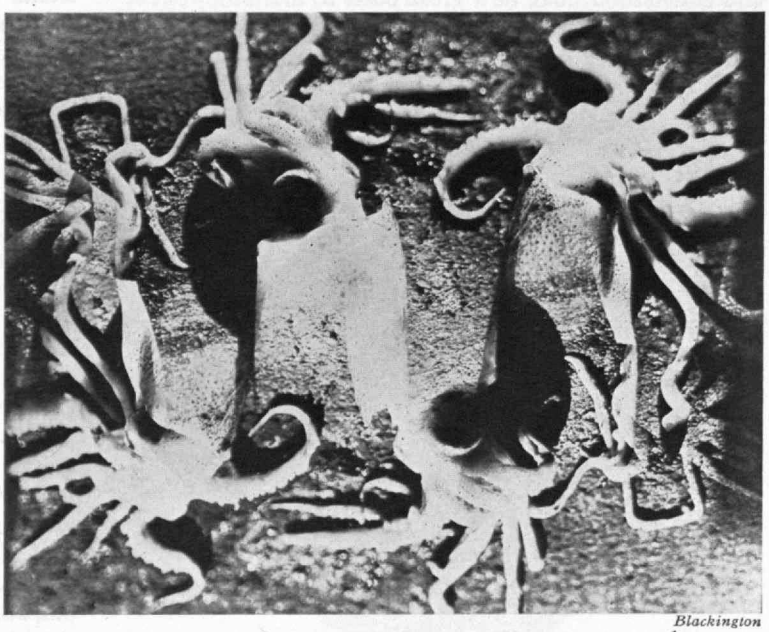
DR. WILLIS R. WHITNEY, '90, DIRECTOR OF THE RESEARCH LABORATORY OF THE GENERAL ELECTRIC COMPANY WITH THE WHITE BOSTON BULL TERRIER RESTORED TO HEALTH FROM AN APPARENTLY INCURABLE FORM OF MANGE BY RADIO HIGH FREQUENCY, OR ARTIFICIAL FEVER, AND OTHER EXPERIMENTS

If all of the known elements, from the lightest, hydrogen (Number 1), to the heaviest, uranium (Number 92), are arranged in the order of increasing atomic weights, and if their x-ray spectra are considered, it appears that the spectra show in general an orderly gradation, a constant difference between adjacent members of the series, except for certain gaps. The gaps have been supposed to correspond to unknown elements, and these, when they have been finally discovered, have been found to show the x-ray spectra corresponding to the gaps in the series. A recent case is that of rhenium (Number 75), discovered by its x-ray spectrum in 1925, and now available in quantity large enough to make possible an inquiry into its fitness for industrial uses. In 1926 the expected spectrum lines of the element illinium (Number 43), were observed by Professor B. S. Hopkins of the University of Illinois. There remained elements Number 87 and Number 85.

Professor Fred Allison of the Alabama Polytechnic Institute has recently developed a magneto-optical method, superior to the analysis of x-ray spectra, which is said to be capable of detecting the presence of an element to the extent of one part among a billion parts of other material. About 15 months ago, Allison and his co-workers reported evidence of the existence of element Number 87, and on May 9, they announced that they had found evidence of the presence of element Number 85 in a number of common substances. If the experiments are confirmed, chemists will be satisfied that all of the gaps in the known series of the elements have now been filled. But this does not necessarily mean that the last element has been discovered. There is no assurance that there may not be an element lighter than hydrogen, although it is simplest to suppose, and seems most probable, that the hydrogen atom contains only one proton and one electron, in which case a lighter atom would be impossible. And there is no assurance that there may not be elements heavier than uranium. The heavy elements are radioactive and undergo a spontaneous breaking down into lighter elements. But uranium, the heaviest of all known elements, is by no means the most radioactive. Sir James Jeans surmises that there may be ultra-uranium atoms so heavy that they have sunk below the surfaces of the stars, leaving no clue in star spectra of their existence. For that matter, unknown elements may be present in the interior of the earth.

More important, perhaps, than Allison's discovery of the new element is his development of the new method which constitutes a more powerful tool for analysis. The method yields only a clue, but a clue by which different substances may be distinguished unequivocally. It will be easier than ever to discover an element before it can be seen.

The history of hydrogen presents an interesting contrast with the present situation. Hydrogen was known and handled long before it was discovered. Paracelsus (1493–1541) observed that when iron was treated with water and sulphuric acid, a gas was disengaged which "rushed off like the wind," and he supposed that the "air" was derived from the water, of which it was an element. Robert Boyle (1626–1691) confounded the gas with ordinary air. John Mayow (1645–1679) collected the gas over water, and questioned whether it was ordinary air. "It is certain," said he, "that it has the same appearance as air, that it contracts by cold, and



Blackington

SQUID BEING PUSHED AS VALUABLE SEAFOOD. THE COMMON SQUID (LOLIGO VULGARIS) HAS A PINKISH OR YELLOWISH WHITE COLOR WITH PURPLISH BROWN SPOTS, AND MEASURES A FOOT AND A HALF IN LENGTH, NOT INCLUDING ARMS. THIS VARIETY IS COMMON IN THE ATLANTIC AND MEDITERRANEAN, SWIMS ACTIVELY IN SHOALS, AND IS SOMETIMES USED AS BAIT

that it has the same elasticity. But for all this, it is hard to believe that it is ordinary air." Nicholas Lemery (1645–1699) observed that if a lighted candle be brought near to the neck of a flask in which iron is effervescing with dilute sulphuric acid, "the vapor will instantly take fire, and at the same time there will be a violent and dazzling fulmination." Some would say that Lemery discovered hydrogen because he distinguished it from air; but others might say that hydrogen was not discovered until about 1783, when Cavendish studied it and showed its relation to the composition of water.

In former times it was necessary not only to catch the criminal but also to confront him with various persons and predicaments to establish his identity. Now it is enough if we have a portion of his finger-print.

Hafnium and Rhenium, or the Metals of the Future

OF THE new elements mentioned above, there are two that are becoming significant because of the possibility of their practical use. The high melting point and the electronic emissivity of hafnium, one of the most abundant of the newly discovered elements, have already led to the taking out of patents for its use in radio tubes and incandescent electric lamp filaments and for the cathode surfaces of x-ray tubes and rectifiers. The metal, of course, is very expensive (about $25 a gram) and its separation is extremely laborious.

Rhenium, a greyish, powder metal, is heavier than gold and has a melting point of 3,440 degrees centigrade, which is higher than that of tungsten. It, too, is very expensive, but when quantity production is achieved, chemists and physicists predict its use in radio and television apparatus.

Certainly these two elements, together with others yet unapplied, should not be ignored in considering new materials for the future.

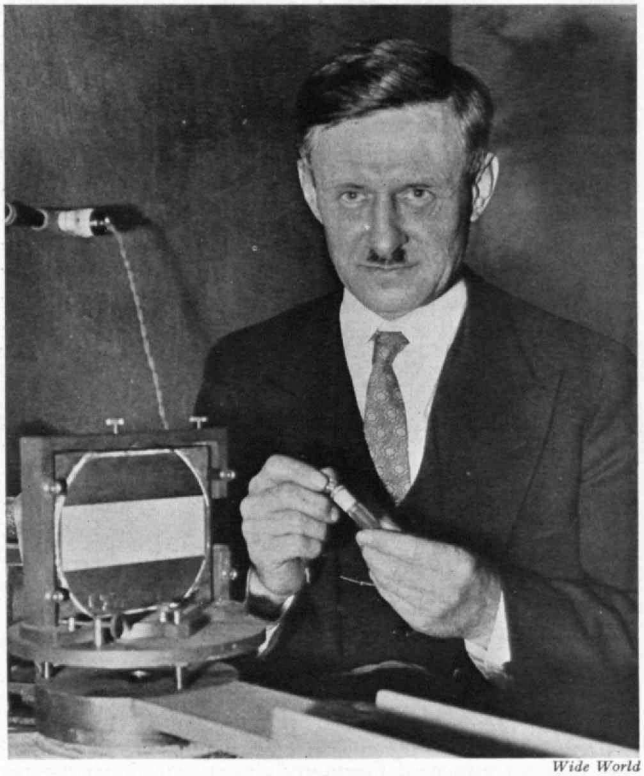
Aeronautical Briefs

THE aeronautical season of 1931 has progressed far enough so that its general characteristics are beginning to become apparent. If not one of the most prosperous, it is certainly not without some interesting and new features.

Possibly foremost in importance in the commercial market is the light plane movement. Although a much-abused and variously interpreted term, "light plane" is preferable to "power glider" for such small craft as the Curtiss Wright "Junior," the Buhl "Bull Pup," the "Aeronca," and their less well-known competitors. Small planes, with engines of less than 50 horsepower, carrying one or two passengers, are designed to be manufactured cheaply and to be operated by the private owner at a minimum of expense and to sell at retail prices between $1,400 and $1,600. This is possibly the first real attempt that has yet been made to consider the pocketbook of the prospective owner of moderate means.

With the airlines, interest continues to center in the achievements of the Ludington line, operating every hour, on the hour, between New York and Washington. Competing with one of the best train services in the world, at practically equal fare rates, this line has carried from 4,000 to 5,000 passengers a month since its inauguration last September. Operating entirely without government support or contract, it should be earning a small profit on its investment, a very remarkable feat for any independent airline. Many are the innovations adopted by this line to reduce costs of operation. Their flying equipment and engines were secured at a very low figure compared to that paid by other airlines for tri-motored equipment. Its short stages permit the omission of co-pilot and of steward. Its equipment is absolutely uniform, requiring a minimum of diversification of stock and repair equipment. Every refinement of operating practice is used to cut down fuel, inspection, and maintenance cost. Overhead is kept to a minimum; the officers are few; the offices are not elaborate; personnel throughout the line, almost without exception, has had long and real experience on other American airlines. Already lines have been started in the Middle West from Cleveland to Chicago and to St. Louis, emulating the "every hour, on the hour" schedule and similar Ludington practices. Other airlines have increased their service to two-hour intervals. From Germany comes the announcement of an hourly service. It is undoubtedly the most important transport development of the last five years.

The autogiro continues to attract public attention and an increasing number of orders. The Collyer trophy for the year's most distinguished aeronautical development was awarded to Harold Pitcairn, controller of American autogiro patent rights, by President Hoover at a ceremony during which an autogiro had been landed on the White House lawn. Assistant Secretary of the Navy,



Wide World

THE EMISSION SPECTRUM OF RHENIUM WAS PHOTOGRAPHED BY THIS CONCAVE GRATING SPECTROGRAPH. DR. WILLIAM F. MEGGERS IS HOLDING A VIAL CONTAINING HALF A GRAM OF PURE PERRHENATE

Ingalls, flew Secretary Adams to the President's camp on the Rapidan. At least a dozen of the ships are by this time in the hands of organizations which are using them for publicity purposes. The sport model, to sell in the neighborhood of $6,000, has been successfully tested and exhibited at the recent Detroit Air Show. By next fall a determined campaign will be well under way to place the 'giros of this latter type in the hands of the private owner. In the power plant field, research and development are still centered in diesel or modified diesel types. By this time, France, Italy, England, Germany, and the United States have at least one type fully developed for marketing purposes, Germany at least two, and the number under private development is well into the dozens. In this country, the Packard diesel engine has been available for over a year and is in all ways a practical and satisfactory power plant. For some reason, it has not been extensively adopted by the manufacturers or the air lines. Ford and Stinson have both offered transport planes powered by it, a twin engine amphibian has been built around it, and the Northwest Airways made some service tests using it. The actual number of such engines in use by customers must be something less than a dozen. Possibly the recent flight by Walter Lees and Frederick Brossy in a Packard powered Bellanca plane may serve to hasten the adoption of the diesel plant in more aircraft. A duration record of 84 hours and 33 minutes without refueling is indeed a triumph of airplane and engine performance.

On May 27 the technical talent of the industry was entertained by the National Advisory Committee for Aeronautics at its research plant at Langley Field, Va. Annually, for the last six years, this conference has been held, during which the N. A. C. A. has demonstrated its research equipment and asked for suggestions for research programs for the coming 12 months. There was much this year in the way of new equipment for the visiting engineers to see. A seaplane towing channel was officially inaugurated. It has the impressive dimensions of 2,040 feet of length, 24 feet of width, and 12 feet of depth. The car, which will impel the hull shapes to be studied, can attain a speed of 60 miles per hour. The new full-sized wind tunnel, the largest in the world by a goodly margin, was also put through its paces. With a chamber 60 by 30 feet, full-scale airplanes up to large sizes can be tested. The air stream, which can attain a velocity of 115 miles an hour, is created by two full-bladed propellers driven by 4,000 horsepower motors. Such is the power load for the task that the local light and power company must be tied in with a transmission network before the tunnel can be operated at full capacity. Just what results can be obtained from research on these two magnificent pieces of equipment can only be determined in the future. They cannot fail to be of unprecedented practicability and importance.

Deutschland

EVEN as the *Bremen* and *Europa*, two years ago, gave first assurance of Germany's post-war maritime revival on the transatlantic lanes, the launching of the 10,000-ton, 26-knot battleship *Deutschland*, or *Ersatz Preussen*, as she had been called, indicates Germany's initial serious bid to reconsideration as a naval power in the 11 years since von Tirpitz's fleet was scuttled at Scapa Flow. The *Deutschland*, variously hailed by the press as the "pocket battleship," "mystery warship," and "most ingenious fighting craft ever launched," is, for her size, the most expensive war vessel yet built. At $20,000,000 her total cost will be $5,000,000 more than the latest 10,000-ton cruiser of the United States Navy and over two-thirds as much as either the *Rodney* or the *Nelson*, the two post-Jutland, 35,000-ton battleships of the Royal Navy. Each of these mounts nine 16-inch guns. In speed and armament the new German battleship will be within the classification of a capital ship as defined by the Washington Treaty, yet her design and construction conform to the stringent handicaps imposed on Germany by the Treaty of Versailles. She is an illustration of "budgeting methods" as applied to naval design. Starting with the allowable tonnage, the construction of a modern warship is largely a question of balancing the weight assigned to five factors: hull, propulsion machinery, armament, armor, and fuel.

In the *Deutschland*, the saving of about 550 tons, or 10%, of hull by welding has permitted that much more weight to be distributed over the remaining components. Furthermore, a saving in weight has been effected by the special design of powerful, internal combustion machinery. Hence, it has been possible to give the *Deutschland* the armament and armor of a capital ship.

For example, her diesels are said to develop 50,000 horsepower and permit a cruising radius of 10,000 miles at 20 knots. Her main engines are reported as weighing but 17½ pounds per horsepower, which contrasts with the figure of 100 pounds and upwards per horsepower for heavy oil engines on the latest passenger ships.

The following figures, given by Professor William Hovgaard in a paper read in 1929 before the British Institution of Naval Architects, illustrate the difference in weight distribution between the *Deutschland* and *H. M. S. Suffolk*, a British cruiser of the *Kent* class completed in 1928. Each has a standard displacement of 10,000 tons without fuel and water. The *Deutschland* has heavier armament and ammunition (six 11-inch guns in two triple turrets, eight 5.9-inch, and six torpedo tubes) than the *Suffolk* (eight 8-inch, four 4-inch, four 3-pounders, four 2-pounders, and eight torpedo tubes). The geared turbines of the *Suffolk* considerably outweigh the propulsion machinery of the *Deutschland*, but are designed to develop 80,000 horsepower and permit a speed of 31.5 knots as contrasted with 26.

	Deutschland		*Suffolk*	
	Tons	*%*	*Tons*	*%*
Hull	3,700	27.0	4,400	31.4
Propulsion machinery	1,150	8.4	1,930	13.8
Armament and ammunition	1,700	12.4	1,000	7.1
Armor	2,700	19.7	2,000	14.3
Various auxiliary machinery	480	3.5	400	2.9
Equipment and stores	430	3.1	430	3.1
Fuel	3,500	25.6	3,460	24.7
Reserve feed-water	40	0.3	380	2.7
	13,700	100.0	14,000	100.0

In this attempt to pack the power of a 20,000-ton battleship into half that displacement, the Germans have brought to bear the experience in welding and the use of special steels gained in building (*Continued on page 474*)

THE INSTITUTE GAZETTE

Fellowships in Business and Engineering Administration

THE latter part of June witnessed the fruition of a long-considered and carefully planned expansion of the work of the new Department of Business and Engineering Administration of which Professor Erwin H. Schell, '12, is now Head. The Department, with the cooperation of six industrial and business leaders of the country, has embarked on a graduate fellowship plan aimed to qualify technically trained men of exceptional ability for early advancement to high administrative positions.

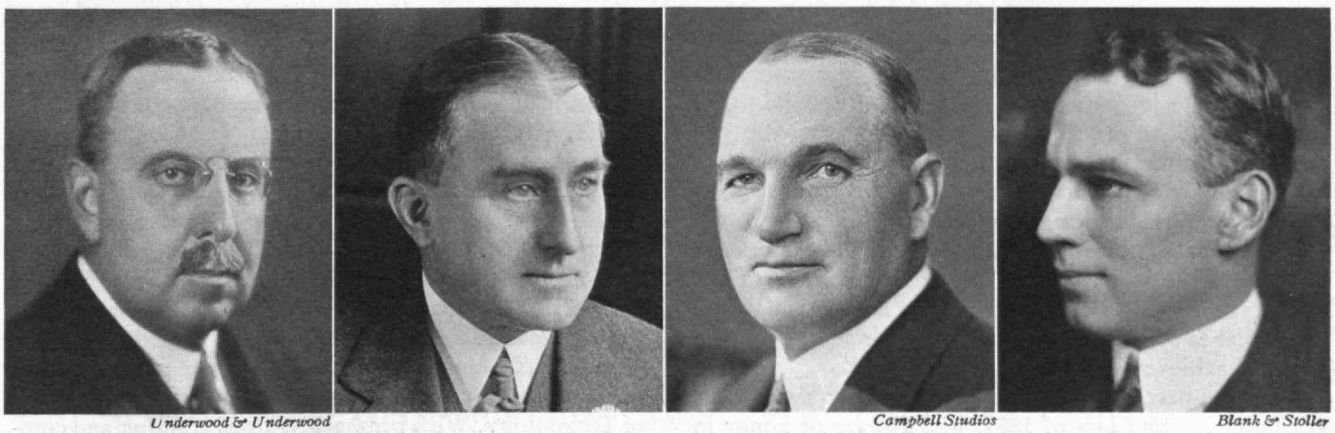
This development, believed to be a pioneer move in business education, is made possible by the establishment in the Department of Business and Engineering Administration of six fellowships carrying stipends of $1,500 each. The business and industrial leaders who have established these fellowships, and who will be the mentors of the six men who hold them, are Lammot du Pont, '01, President of E. I. du Pont de Nemours and Company; Alfred P. Sloan, Jr., '95, President of General Motors Corporation; John R. Macomber, '97, Chairman of the Board of Harris, Forbes and Company; Francis W. Fabyan, '93, merchant, of Boston; Charles A. Stone, '88, Chairman of the Board of Stone and Webster, Inc.; and Charles Hayden, '90, Senior Partner of Hayden, Stone and Company. Of this group the Messrs. Macomber, Fabyan, Stone, and Hayden are Corporation Life Members; Mr. du Pont a Term Member; Mr. Sloan a former Term Member.

The purpose of the fellowships is to make it possible for a small group of carefully selected young men of proven intellectual ability and outstanding personality to develop their natural qualities of leadership, vision, and sound judgment by special professional training. After they enter the business or industrial field they will make to their sponsors a report of self development each year for five years.

The work to be carried out under the provisions of these fellowships will make it possible for men of exceptional qualifications to avoid many of the obstacles that lie in the usual path of advancement to administrative positions of high responsibility. The holders of the fellowships will live together under the supervision of a member of the Faculty. They will be in constant contact with leaders in various business and industrial fields, and will conduct special researches into current problems faced by coöperating administrators.

The fellowships provide for a summer session and a subsequent year of graduate work in a selected field of concentration in business administration, and they will lead to the degree of Master of Science in Business Administration. The work will include requirements assuring familiarity with the important functions of business; namely, production, marketing, banking and finance, accounting, statistics, business law, personnel administration, and administration policy.

The six men who have been appointed to the first fellowships were chosen after a careful analysis of the records of the 3,500 graduates of the Institute since 1925. The Lammot du Pont Fellowship was awarded to Amerst E. Huson, '30, of Manchester, N. H., a graduate in mechanical engineering. Henry W. Jones, '26, of Bethayers, Pa., a graduate in chemical engineering and now an engineer with the Atlantic Refining Company of Philadelphia, received the Francis W. Fabyan Fellowship. Horace S. Ford, Jr., '31, of Brookline, who has been taking the course in building construction, was awarded the Charles Hayden Fellowship. Jesse L. Maury, '25, of Neihart, Mont., a graduate in mining engineering and metallurgy, was given the John R. Macomber Fellowship. John C. Leslie, '28, of Coral Gables, Fla., a graduate in aeronautical engineering, was awarded the Alfred P. Sloan, Jr., Fellowship. Wilfred F. Howard, '30, of Nutley, N. J., who was graduated in the course in civil engineering, received the Charles A. Stone Fellowship.



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THE FOUR MEN ELECTED TO LIFE MEMBERSHIP IN THE CORPORATION THIS SPRING. LEFT TO RIGHT: ALBERT H. WIGGIN, CHAIRMAN OF THE BOARD OF THE CHASE NATIONAL BANK OF NEW YORK; JOHN R. MACOMBER, '97, CHAIRMAN OF THE BOARD OF HARRIS, FORBES AND COMPANY; JOHN J. PELLEY, PRESIDENT OF THE NEW YORK, NEW HAVEN AND HARTFORD RAILROAD; AND ALFRED L. LOOMIS, BANKER AND PHYSICIST OF NEW YORK

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BUSINESS AND INDUSTRIAL LEADERS WHO HAVE ESTABLISHED FELLOWSHIPS IN THE DEPARTMENT OF BUSINESS AND ENGINEERING ADMINISTRATION. LEFT TO RIGHT: CHARLES A. STONE, '88, CHAIRMAN OF THE BOARD OF STONE AND WEBSTER, INC.; FRANCIS W. FABYAN, '93, MERCHANT, OF BOSTON; CHARLES HAYDEN, '90, SENIOR PARTNER OF HAYDEN, STONE AND COMPANY; ALFRED P. SLOAN, JR., '95, PRESIDENT OF GENERAL MOTORS CORPORATION; LAMMOT DU PONT, '01, PRESIDENT OF E. I. DU PONT DE NEMOURS AND COMPANY. JOHN R. MACOMBER, '97, CHAIRMAN OF THE BOARD OF HARRIS, FORBES AND COMPANY ALSO ESTABLISHED ONE OF THESE FELLOWSHIPS. HIS PICTURE IS INCLUDED IN THE NEW LIFE MEMBERS OF THE CORPORATION ON THE PRECEDING PAGE

Graduation

COMMENCEMENT exercises at Symphony Hall in Boston on June 9, marked the graduation of Technology's sixty-fourth class. Of the total of 635 degrees awarded, 437 represented the Class of 1931. Included in 171 advanced degrees were nine Masters of Science in Architecture, seven Doctors of Philosophy, and seven Doctors of Science. Four Certificates in Public Health were awarded.

Six women were awarded degrees this year. The degree of Master of Science in Geology was conferred upon Marjorie A. Holden, Hillsboro, N. H., and Louise Jordan of Youngstown, Ohio. Ruth I. Parsons and Emily P. Rickey of Grand Rapids, Mich., were awarded Certificates in Public Health, while Elise du Pont of Wilmington, Del., and Marian C. Andrews of Groton, Mass., were graduated with degrees of Bachelor of Science in Architecture.

Three of the eight degrees of Master of Science in Naval Construction were awarded to officers of the Spanish Navy. They are graduates of the Naval Academy at Ferrol, Spain, who, by arrangement with the United States Navy, were permitted to take the course for naval constructors in the Department of Naval Architecture and Marine Engineering.

The commencement address was given by the Hon. Ray Lyman Wilbur, Secretary of the Interior, and President (on leave) of Stanford University. Employing the slide rule as a symbol, Dr. Wilbur discussed the search for truth and the importance of facts in the upbuilding of civilization. The expert in facts and the man who can arrange them to render a practical service, he declared, is the true guide of the material side of civilization.

This year's graduation was the first at which Dr. Compton had presided as President. He awarded the degrees and introduced the speakers. Dr. Stratton, Chairman of the Corporation, addressed the graduates and extended the good wishes of the Corporation for their success in professional achievement.

As in the past, so again this year the Fifty Year Class, graduates in the Class of 1881, had a place of honor in the academic procession and later were guests of Dr. Stratton at luncheon. The Army and Navy were represented at commencement by Major General Fox Conner, Commanding General of the First Corp Area, and Admiral Louis M. Nulton, Commandant of the First Naval District. Both made brief addresses. Mr. Alexander Macomber was chief marshal of the academic procession, and the Rev. A. L. Kinsolving, Rector of Trinity Church, offered the invocation.

Additions to Faculty

AMONG the notable additions to next year's Faculty are the following:

DR. RALPH D. BENNETT, Associate Professor of Electrical Engineering, graduate of Union College. He received his Ph.D. in physics at the University of Chicago, where he was associated with Dr. Arthur H. Compton in the final experiments which led to Dr. Compton's being awarded the Nobel prize; he held a National Research Fellowship in physics at Princeton and later at the California Institute of Technology, where he developed several interesting electrical devices, including probably the first million-volt x-ray tube. Following this, Dr. Bennett worked at the University of Chicago as a research associate for the Commonwealth Edison Company, and during the past year he has been assisting Dr. Arthur H. Compton in preparing for a series of experiments on cosmic rays. Dr. Bennett has had an unusually wide experience in theoretical and practical electricity, and has a reputation for unusual ingenuity and technique in the line of the work which he will carry on here.

DR. LOUIS B. SLICHTER, Associate Professor in the Department of Geology, graduate of the University of Wisconsin, where he received his Ph.D. in mathematical physics. During the war he carried on important research on the detection of submarines, after which he was employed in the research department of the Submarine Signalling Company. He then formed with Dr. Max Mason, now President of the Rockefeller Foundation, a geophysical prospecting company which has operated successfully for the location of mineral deposits. During the past year he has been engaged in the mathematical study of scientific geophysical problems at the California Institute of Technology. With his mathematical training and combination of theoretical and practical interest in geophysics, Dr. Slichter will bring to his work a valuable fund of knowledge in the important *(Continued on page 476)*

SAVING MONEY

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DURING the past fifty-five years, the constant effort of the Bell System has been to provide efficient telephone service for all the people at the lowest possible price. There are many instances of substantial savings for subscribers.

Since the latter part of 1926 the reductions in long distance rates have been particularly marked. For example, a telephone call across the country from New York to San Francisco now costs $9 instead of $16.50.

Reductions have also been made for lesser distances. As a result of these rate reductions, telephone users are now saving the substantial amount of $20,000,000 annually. You, as a telephone subscriber, are constantly receiving extra value from your telephone—because the number of subscribers is increasing, and the more people you can reach by telephone, the more valuable it is to you.

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BROBDINGNAGIAN BRIDGES

(*Concluded from page 444*)

measurements by extensometers on the actual structure have been undertaken. Such measurements are now in progress in certain parts of the Hudson River Bridge and more extensively in the Kill van Kull Bridge.

Finally, in order to gain further knowledge of the actual behavior of large-sized members and connections when loaded to destruction, a series of such strength tests have been undertaken. In connection with the Hudson River and Kill van Kull bridges, for instance, compression tests were made of a number of columns of various materials and of the largest sizes ever tested, taxing the 10-million-pound testing machine of the Bureau of Standards in Washington to its capacity. Many tests of large size riveted connections have also been made in recent years.

Æsthetics

BESIDES the technical advance in bridge construction we may record welcome developments with respect to the æsthetic side. While engineers generally are possessed of a strong sense of utility and are inclined to justify the appearance of any structure from the economic and scientific point of view, there is a marked recognition of the demand of public opinion that proper æsthetic treatment be given to our public structures, and that the collaboration of the architect who is trained and better qualified to develop æsthetic forms and architectural embellishments is essential for that purpose.

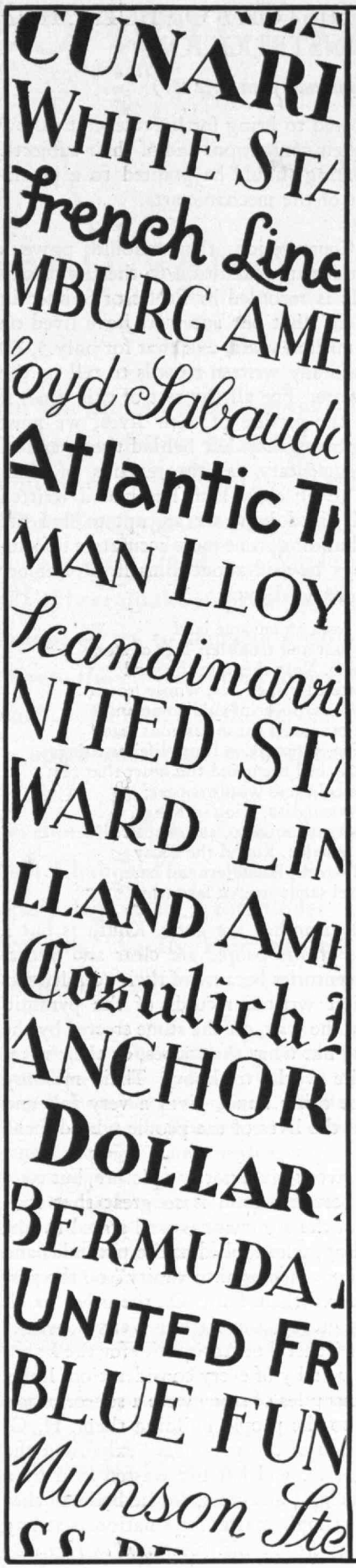
In large bridges, of course, the principal lines and proportions of the structure must be determined by the engineer, for they are, to a large extent, dictated by the fundamentals of strength and stability and by local geographical and topographical conditions. Within certain limits, however, the engineer must and can apply his own sense of beauty in determining them. But it is often essential, in order to improve the general appearance of a structure, to mask or supplement certain crude engineering features by architectural embellishments, the design of which must be left to the architect. It is by such collaboration between engineer and architect that some of our modern large bridges have progressed beyond the field of purely utilitarian and scientific structures.

NEEDED: A HISTORY OF BUILDING CONSTRUCTION

(*Continued from page 447*)

for himself; it would take a brave man indeed to attempt to influence the opinion of his neighbor.

It is clear that no just decision on such a point can be made unless evidence has been presented to show a complete picture of the time. As yet we have no facts from the builder. We have, and we should have, the stories of all the other groups, but the constructors, the largest single body in our civilization, have been silent. All the abovementioned learned doctors of one thing and another have been given their days in court; (*Continued on page 466*)



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NEEDED: A HISTORY OF BUILDING CONSTRUCTION

(Continued from page 464)

they have been allowed to bring forth evidence to show the importance of their contentions and of their subjects. Surely an equal hearing should be granted to a practitioner in the oldest of the mechanic arts.

A HISTORY of Construction, then, should prove a particularly informative addition to the list of stories already told. It is recorded by Professor Shimer in "Evolution and Man" that our ancestors have lived on earth for at least a million years, and that for only 5,000 years have there been any written records to tell us the kind of men they were. For all the rest of this time, if we would redraw the picture of their lives, we must depend on the fragments they left behind them, and of these, the least fragmentary are the remains of their stone construction. Even since man has had a written language to record his doings, we are apt to find the things he did with building stone more accurately informative than the things he said about himself. Remember the fate of Ozymandias of Egypt:

> I met a traveler from an antique land
> Who said: Two vast and trunkless legs of stone
> Stand in the desert. Near them on the sand
> Half sunk a shattered visage lies, whose frown
> And wrinkled lip and sneer of cold command
> Tell that its sculptor well those passions read
> Which yet survive, stamped on those lifeless things
> The hand that mocked them and the heart that fed.
> And on the pedestal these words appear;
> "My name is Ozymandias, King of Kings,
> Gaze on my works, ye mighty, and despair."
> Nothing beside remains. Round the decay
> Of that colossal wreck, boundless and bare,
> The lone and level sands stretch far away.

The glories of Ozymandias are gone. Khufu is but a name, yet the lives of his people are clear and understandable after five centuries because of their activities as builders. The earliest written records of the pyramid builders (carved, by the way, on the stone erected by the masons) tell nothing but what the scribes, or their royal masters, wanted the world to know. Their masonry construction, on the other hand, gives a very full and unstudied picture of the lives of the people who did the building.

In fact, their stonework gives not one picture, but two, and the difference between them is so great that it is amusing. One side of the argument is well stated by the Roman historian Pliny, who looked at the pyramids and saw only a "stupendous memorial to vanity" on the part of the men who ordered them built. On the other hand, such a profound Egyptologist as Arthur Weigall, whose opinion as Inspector General of Antiquities for the Egyptian Government is worthy of every consideration, holds that these tremendous piles of stone were a source of joy and national pride to the people building them. H. G. Wells says the erection of the pyramids "exhausted the resources of Egypt, . . . and left her wasted as if by a war." Again Dr. Weigall disagrees, for he believes that the pyramids were a simple matter for a nation as strong as the Fourth Dynasty Egyptians. *(Continued on page 468)*

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NEEDED: A HISTORY OF BUILDING CONSTRUCTION

(Continued from page 466)

Far from being ruinous, he says the expenditure of labor and treasure was well invested, as the result was so imposing that no enemy would risk assaulting a people capable of such effort.

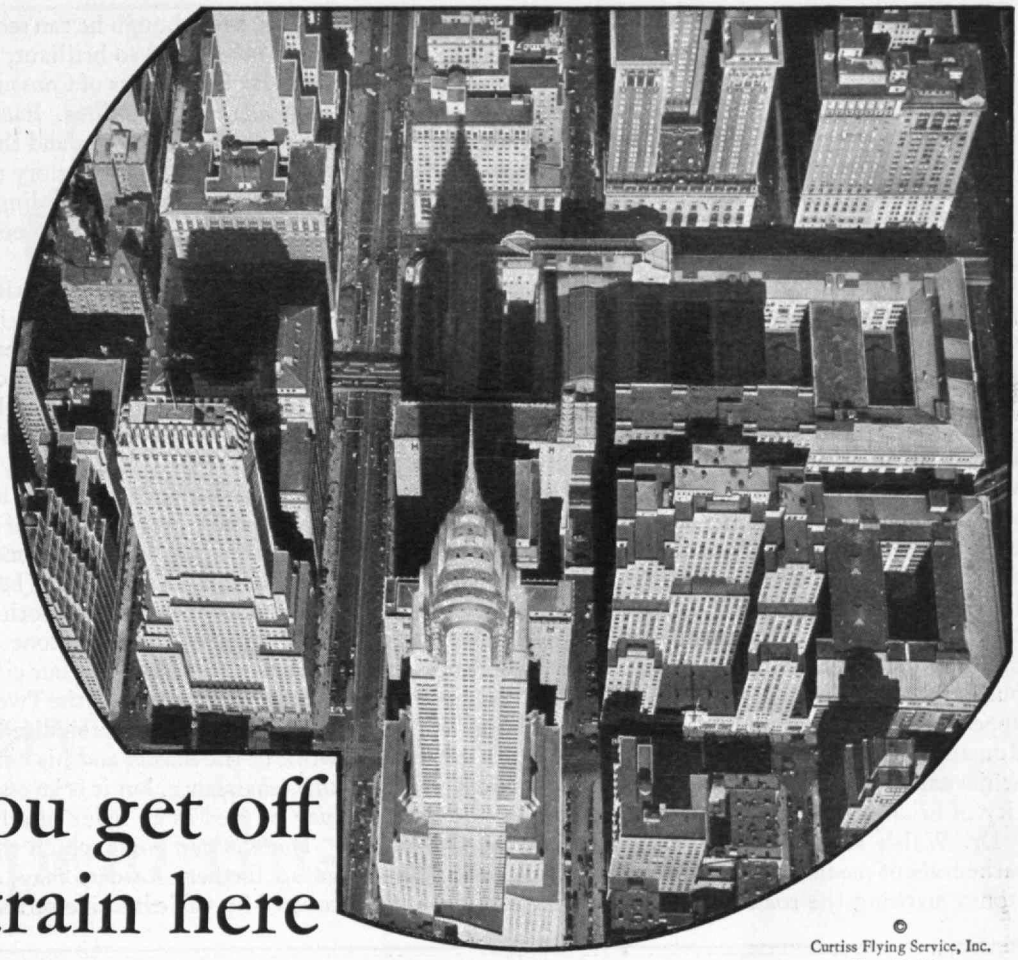
Give ear to Dr. Weigall. After telling how the great blocks (some of them weighed 50 tons) were dragged up the sides of the unfinished structure on ramps lubricated by water, he says, "Scores of these brick ramps must have zigzagged in gentle gradients up each side of the growing Pyramid; and all day long these gangs of men must have dragged the blocks of stone up them, singing as they went, as Egyptians sing at their work today, while their overseers clapped their hands to lead their songs or swing their whips about in harmless and good-natured energy."

This account doesn't sound much like Pliny. It sounds more like a Boy Scout Song Fest than the forced labor of a nation enslaved to satisfy the all-devouring vanity of a ruler who believed himself semi-divine. It also sounds too much like special pleading to be altogether satisfactory. If Weigall had omitted the "gentle gradients," or the "harmless and good-natured whips," or the singing, his plea would have had more force. No living builder has directed the labor of a hundred thousand Egyptians in the erection of a pyramid, and the building superintendents who had charge of the job for Khufu failed, like their fellows ever since, to record their experiences and emotions, but the building constructor who has put heavy stone into place can assure anybody who has never tried it that the setting of a 50-ton block using nothing but human muscle would be done without music. Like the present-day Egyptian, the southern negro sings at his work, but that work never approaches the magnitude of a pyramid, and when the law allowed the use of whips, the element of good nature was entirely absent.

It is probable that Pliny, a Roman nobleman living at the time of Rome's greatest power and activated by the contempt of his class for anything not Roman, was exhibiting an inferiority complex. Weigall, on the other hand, spent his life investigating the glories of the Pharaohs, and to him, the early Egyptian king could do no wrong. He was sure the pyramid builders were a great, happy people, ruled by wise and benevolent kings, that he felt it necessary to rush to their defense, even against an opponent dead as long as Pliny.

Here, then, are two pictures of the people of the Nile, each drawn from an examination of the work of their masons. They conflict, but either is far clearer than anything we can gather from the written records of the same people. These are confused and broken, and give, at best, nothing but the name of the king and a little of what he thought about himself.

So the story continues throughout the ages. No matter what the race or the time, the things man has built are among the most informative of his activities. Sometimes it is the tools he used in building rather than the building itself, as evidenced by the Mound *(Continued on page 470)*



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The SHELTON

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NEEDED: A HISTORY OF BUILDING CONSTRUCTION

(*Continued from page 468*)

Builders, of the Ohio. Excavations now being made in the great heaps they left have brought to light obsidian axes and other building tools. Obsidian is a natural glass resulting from an acid lava flow and is not found any nearer Ohio than the Yellowstone. The presence of these building tools, therefore, indicates an extensive commerce on the part of the Mound Builders, and commerce implies so many other things that with this one fact we are well started toward an understanding of these people.

Consider Stonehenge. Knowledge of pre-Roman England is scant enough at best, and most of it comes from what the excavators have found around Stonehenge and similar monuments left by the early British builder. Or consider the Mayas of Yucatan. Archæologists are now attempting to reconstruct the lives of the peoples who lived in Central America 2,000 years ago, a task scientifically impossible without the relics left by the Mayas in building stone. And to realize that this dependence on building construction as a historical index did not disappear in more recent days, remember the boast of the Roman Emperor Augustus, who felt that his greatest achievement was shown in the fact that he found Rome a city of brick and left it a city of marble.

Dr. Walsh and the architects agree that the Gothic cathedrals of medieval Europe are among the chief milestones marking the road over which we have come. Dr. Tobey, even though he can see nothing but darkness in the years others find so brilliant, becomes almost lyric when he tells of the drains of Cnossus in Crete and of the Roman aqueducts of Frontinus. Each of these men, from the Egyptian king of kings and the ruler of the Roman world seeking an index of his glory to the modern scholar looking for the means of guiding his thesis along his own particular route, has chosen the work of the mason constructor as his beacon.

Mr. Cram, in a series of articles on Church Architecture written for the *Churchman*, has lamented the horrible wooden churches which were so common 30 years ago. Comparing them to the stone chapels we might have had, he accused the American people of being "lower than the Maoris of New Zealand or the Pueblo Indians." It is to be hoped that since the country has accepted Mr. Cram's advice and altered its ways he thinks better of us. We have turned over a new leaf in a way which fits very nicely into the present argument. The wonderful renaissance of American culture (beginning about the time of the articles) is shown by nothing else as clearly as in our building construction. Stone chapels in our towns and towering skyscrapers in our cities are surely as expressive as anything could be of the Twentieth Century in America. No one, not even a prejudiced builder, believes that the work of the mason and his collaborators is the whole of this renaissance, but it is an essential part, and one which may be used as an index of all the rest.

There is one point which should be made clear before going further. Readers may ask if this subject is not covered by the extensive series on (*Concluded on page 472*)

We may not be able to repeat this Stunt

IT was when a famous English author was staying at a United Hotel. The manager of the hotel got a letter from a book collector, asking if we could help him get the author's autograph. Well, we saw the author (mighty nice chap) . . . and the book collector got a personal letter from the great man!

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UNITED HOTELS

NEEDED: A HISTORY OF BUILDING CONSTRUCTION

(Concluded from page 470)

architectural history with which our libraries bulge. The answer is, most emphatically, no. Although most modern architects overlook the fact, it is their chief function to interpret the builder's capacity to assemble the materials furnished by the craftsmen of the building materials manufacturers, the craftsmen whose work stands behind every building ever constructed. The pyramids and obelisks of Egypt were not designed by architects; they developed as the craftsmen of the Pharaohs acquired the ability to handle, quarry, and erect heavy stone.

All architectural histories speak of the Egyptian architect and of his importance in the court of the Pharaoh, but as a matter of fact, the official they extol was not an architect at all, rather the prototype of the modern contractor. Among his other duties he directed the scribes in the preparation of such plans as were used, but the title he bore (and if the records are correct, he bore it proudly) was "Chief Carpenter," or more literally, "Chief of the Men of the Ax." Ancient records list many of these men, but even then they were poor publicists, and we have little information about their lives. For them, fortunately, written records are unnecessary, as their work lives on to tell their successors that they were builders, and not what we know today as architects. This same uncertainty in the minds of writers on architectural history is shown again in their discussions of the building of the medieval cathedrals. They speak of "architects" who were, and who called themselves, master masons. The visitor to Nuremberg is told of the "architect" of St. Lawrence's cathedral who was deposed by his two scheming assistants; how the two new "architects" quarreled while setting the stone trim of a window in one of the two towers and were killed in the resulting fall; how the original "architect" was reinstated; and how his first action was to fill in the fatal window with his own hands. This man may, of course, have been an architect, but he sounds more like a mason. The truth is that on St. Lawrence's and on all the other Gothic cathedrals the form of the building, even to its adornment, was determined by the abilities of the man in charge, the building constructor. The Gothic vault was devised by the builder because of the disastrous experiences his predecessors had had with wooden roof construction, and the beauty of its lines was determined by the construction methods at the command of the master mason. The flying buttress was used not because it was beautiful, but because it was necessary, and its beauty is derived from its utility. The buttresses on Notre Dame are beautiful, but when they are transported to Chicago and pasted on a skyscraper where they are not needed for support, the world finds that their beauty is inherent in use rather than in form.

The difference between the subject matter of a history of architecture and the subject matter of this new book may well be illustrated by the American skyscraper. The tall office building was made possible not on an architect's table, but in the steel mills where men learned how to

make the beams and columns for the skyscraper's skeleton, and in the shops where the inventor devised the elevator that made lofty offices rentable. Present-day magazine articles by architects, discussing the pros and cons of the crowded city, have much to say of Burnham and Root, of Jenney and Sullivan, but nobody mentions Kloman and Kennedy of the steel mills, or Otis and Tufts of the elevators. To the builder, the stories of Piper of the Keystone Bridge Works, of Roebling and his wire rope, and of the unsung heroes who perfected the derrick, are just as important and interesting as the story of "Uncle Dan" Burnham and how he designed the Monadnock Building.

All builders are willing to grant to the philosopher his "Story of Philosophy" and to the physician his "Devils, Drugs and Doctors." The architect and the sanitary engineer may interpret history each in the light of his own art. And now perhaps the builder may understand our predecessors in the light of their efforts in the art of building construction.

STEAM'S FUTURE ON THE RAILROAD

(Continued from page 451)

built by the London, Midland and Scottish. Its latest European development is an ultra-high-pressure compound express locomotive built by Henschel & Sohn of Kassel, in collaboration with the German Schmidt Superheater Company, for the *Paris-Lyon-Méditerranée*. The Schmidt made its cisatlantic début last May in a 2–10–4 engine (pictured on page 450) built at the Angus shops of the Canadian Pacific in coöperation with the American Locomotive Company and the Superheater Company. The first completely American engine using the Schmidt indirect method of steam generation is now building for the New York Central at the Schenectady plant of the American Locomotive Company. It is of the 4–8–4 type.

The Schmidt principle is illustrated by the following description of the *P-L-M* locomotive, taken from the *Railway Gazette* of London. In this engine, steam, rising to 110 atmospheres (1,617 pounds) at high boiler outputs, is first generated in a closed circuit, which (see photograph on page 451) "comprises a water-tube firebox and combustion chamber, the sides and ends of which are formed of tubes expanded at the bottom into the foundation ring and at the top into two horizontal steel drums, mounted centrally above and partly between which is a larger forged nickel-steel drum having an inside diameter of 3 feet, 1½ inches. Tubular heating elements pass into this drum from the closed circuit. Steam is generated from the water in contact with these at 60 atmospheres (882 pounds), this steam being used in the high-pressure cylinders. The exhaust from these is supplemented by steam at 14 atmospheres (206 pounds) generated in the low-pressure boiler, which is of the ordinary fire-tube type with superheater. . . . Only condensate or rain water may be used for make-up purposes in the heating system, since the formation of scale in the tubes must be avoided. . . ."

(Concluded on page 474)

STEAM'S FUTURE ON THE RAILROAD

(*Concluded from page 473*)

The *Deutches Reichsbahn* have lately been trying out the Schwartzkopff-Löffler which, like the renowned "Hush-Hush," developed by H. N. Gresley, Locomotive Superintendent of the London and Northeastern, uses water tubes not only in the firebox but in the boiler. The Löffler utilizes a working pressure of 1,700 pounds, and the latter 450.

Mr. Gresley's locomotive is not only the longest and heaviest in Great Britain but it departs in appearance from the orthodox steam locomotive as is shown by the photograph on page 449. Like the *James Archbald*, an outside casing insulates and streamlines the upper part and, in the English machine, passageway is provided through the tender to permit a change of driving crew with the train under way.

Turbine locomotive development began in Sweden during the War through the efforts of Frederick Ljungstrom and his brother, Birger, after whose designs an experimental engine was constructed by *Aktiebolaget Ljungstrom Angturbin* at Stockholm in 1921. Since then several larger locomotives of this type, ranging from 1,750 horsepower to upwards of 3,000, have been built and used for regular railway services: in England an express engine for the London, Midland and Scottish; in Sweden a freight engine for the Argentine State Railways and at least two passenger or freight locomotives for the Swedish State Railways.

In the Ljungstrom turbine locomotive the leading section, carrying the boiler plant, is followed by a trailer (of nearly equal wheelbase) bearing the turbine, reduction gearing, and condenser. More of the total weight is distributed over wheels other than drivers, compared with locomotives of the piston type. Besides, according to its proponents, showing marked fuel economy combined with high haulage capacity, the turbine locomotive's camel-like virtue of being suited to long runs without taking water, makes practicable a choice of feedwaters and lessens the needed number of feedwater treating plants.

On the *Deutches Reichsbahn* a differently designed turbine locomotive, first proposed by Dr. Zoelly of Zurich, has in practice shown economies in fuel and water. An experimental engine of this type, furnished for the Seddin Railway Exposition in the fall of 1924, has been for some time used in regular service hauling fast passenger trains between Hanover and Aix-la-Chapelle. In this engine (called the Krupp-Zoelly and pictured on page 448) the turbine is arranged on the locomotive in much the same position as the ordinary locomotive cylinders, with water-cooled condensers closely attached to them.

Though the reciprocating engine will probably remain standard for many, many years, the flat presumption that a high-pressure turbine locomotive will never be developed to give general service as a reliable unit, and one reasonably economical to operate, seems unwarranted. Its large starting torque, absence of dead center and of unbalanced wheel impact loads on bridges and track are excellent recommendations. Extra first cost, maintenance troubles, and complexities of the condensing equipment are holding it back, but recently one or more experimental non-condensing units have been built in Sweden. If these prove out, the future of the turbine locomotive will be correspondingly brightened.

Steam possesses other minor cards to play as the contest for its supremacy in motive power quickens: higher superheat, improvement in the feedwater heating system, smokebox economies, larger exhaust nozzles with corresponding reductions in back pressures, the application of power throttle operating mechanisms, more consideration for the convenience and safety of the engine crew, to catalog but a few trumps. It may be that poppet valves, tried abroad, will displace piston valves; or that unaflow engines, which offer certain advantages in the better utilization of steam as compared with the conventional counter-flow type, will overcome their corresponding disadvantages through experiments now under way.

But the significant trend of railroad motive power requirements in the future is bound to be toward meeting the demands for sustained horsepower capacity at speed. Vast operating economies, present or potential, will get a merited and cordial reception, but only by running longer and heavier full-tonnage trains to their destinations in less and less elapsed times, can the carriers hope to cope with the competition of the automobile and airplane. Steam is readier at present for this coming struggle than ever before and — given 152-pound rails like the Pennsylvania is putting into service, stronger roadbeds, bridges with lighter curvatures than are now the fashion, lower gradients, and with highway crossings eliminated; given better dispatching and signaling, streamlining of trains and, as one authority says, a "pointed stern" to rear-end cars, to cut down suction drawback — the steam locomotive of today will be revealed as a unit already prepared to solve many of the problems of tomorrow.

THE TREND OF AFFAIRS

(*Concluded from page 460*)

the *Koenigsberg*, *Karlsruhe*, and *Koeln*, the three 6,000-ton replacement cruisers so far commissioned. These three, on the authority of Hector C. Bywater, a distinguished British naval writer, have a radius of action of 18,000 miles and their diesels develop one unit of horsepower for every 12 pounds of weight.

It is unwarranted, however, to conclude that the *Deutschland*, and the *Ersatz Lothringen*, a second ship of her class to be laid down soon, presage a revival of the pre-war, naval building race between England and Germany. By the Treaty of Versailles, Germany is limited to six battleships of 10,000 tons, standard displacement, six light cruisers of 6,000 tons, 12 destroyers of 800 tons, and 12 torpedo boats of 200 tons. Germany may replace no battleship or cruiser, unless lost, within 20 years from the date of launching, and no destroyer or torpedo boat within 15 years. She is permitted to have no submarines, and her naval personnel is restricted to 15,000 of all ranks. Such a force is indeed puny compared with the 129 submarines turned over to Admiral Tyrwhitt's Harwich flotilla off the Essex coast on November 20, 1918, and the vast armada of the High Sea Fleet surrendered to Admiral Beatty off the Firth of Forth the following day.

Moreover, to call the *Deutschland* "a warship too powerful for ships which can catch her and too fast for ships that can sink her" is an overstatement. There are at present in the British fleet three heavier and faster battle cruisers (*Hood*, *Renown*, and *Repulse*) and five 25-knot battleships of the *Queen Elizabeth* class, all carrying 15-inch guns; the Japanese have three battle cruisers of the *Kongo* class, mounting 14-inch guns and capable of 26 knots; while the London Treaty 10,000-ton cruisers of the United States Navy (such as the *Pensacola*, *Salt Lake City*, and *Northampton*) are capable of 33 knots or better, though mounting lighter armament.

Prime interest in the *Deutschland* derives from the likelihood that its technical lessons may be applied by the various admiralties with resulting basic changes in naval science. To find a possible parallel one must turn back to the conception of the *Dreadnought* as it emerged from Lord (then Sir) John Fisher's committee in 1904. Embodied in this heavily armored, "all big gun" ship was turbine machinery to give a speed of 21 knots. This type of craft with ten 12-inch guns surpassed in offensive power, swiftness, and protection anything then afloat.

Later in the Royal Navy came successively super-*Dreadnought* types, the *Orion*, *King George V*, and *Iron Duke* classes, in which the armament was stepped up to 13.5-inch guns, though the speed still remained at 21 knots. This increased calibre meant a shell of 1,400 pounds instead of 850, and later this weight was to pass 1,900 pounds in the 15-inch ordnance of the *Queen Elizabeth*, *Malaya*, *Barham*, *Valiant*, and *Warspite*, completed in 1915 and 1916. Besides definitely superior armament, the *Queen Elizabeth* class had an increased speed of 25 knots and four of these ships, forming the Fifth Battle Squadron under Admiral H. Evan-Thomas, amply demonstrated in action at Jutland the capability of such a type to withstand heavy bombardment and to retaliate in kind. The *Rodney* and *Nelson* together with the five *Queen Elizabeths* form the battleship backbone of the present Royal Navy.

Steam Competes With Niagara

DRAMATIC testimony to the efficiency of coal-burning electric generating stations is given by the existence of one of the world's largest steam power plants, 22 miles from Niagara Falls. The Niagara-Hudson system put into service last month an additional generating unit at its Huntley steam electric station of Buffalo, raising the capacity of this to 622,000 horsepower, a capacity 50% greater than that of the 448,000 horsepower Schoellkopf hydro-electric station at Niagara Falls.

The new unit added at the Huntley steam station is a 107,000 horsepower generator, the twin of one put into operation earlier this year. Each of these turbine generators requires 418 tons of steam an hour and each is the size of an ordinary dwelling house.

Construction of this huge steam plant on the brink of Niagara calls attention not only to the advances in steam generation, but to the restrictions and political applications which prevent further utilization of the vast power of Niagara. The power expended by the river in its descent of 326 feet from Erie to Ontario amounts to approximately eight million horsepower.

THE INSTITUTE GAZETTE

(Continued from page 462)

field of physics of the earth, in specialized portions of which investigations are now being carried on at the Institute.

DR. WAYNE B. NOTTINGHAM, Assistant Professor in the Department of Physics, electrical engineer, and Scandanavian-American Fellow at the University of Upsala. After his fellowship he returned to America to join the research staff of the Bell Telephone Company and later was put in charge of certain developments at the Hawthorne Plant of the Western Electric Company. Following this he received his Doctor's Degree on the basis of research on the properties of metallic arcs at Princeton. Since then he has been a research fellow of the Bartol Foundation and has done notable work, first on arcs, and more recently on photo-electric phenomena, electron emission, and properties of metallic surfaces. He has at the same time been a consultant in the design of new apparatus involving amplifiers.

DR. PHILIP M. MORSE, Assistant Professor in the Department of Physics, graduate of the Case School of Applied Science, Ph.D., at Princeton University. While at Princeton he published numerous papers, several of which were in collaboration with President Karl T. Compton, on theoretical interpretation and mathematical formulation of phenomena of discharges through gases. He is the author of several important theories dealing with the spectra, dissociation and energies of chemical molecules and is co-author of the first book in English on wave mechanics. This year he is at the University of Munich as an International Research Fellow.

Sketches of other new professors will appear in the next issue of The Review.

MINIATURE POWER SYSTEMS

(Continued from page 452)

Analyzer is a tool for obtaining this assurance. With it he can try out the new scheme, observe its benefits and deficiencies, correct troubles where they occur, and deliver to his load dispatcher a set of operating instructions complete in every detail. By means of these instructions the change-over can be made with confidence that no trouble will occur and that the desired conditions will be obtained. The engineer, who is considering the advisability of operating his system with generators connected only through feeders to mutual loads (so-called "synchronization at the load") instead of using heavy ties between generators, is confronted with precisely this type

(Concluded on page 478)

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MINIATURE POWER SYSTEMS

(Concluded from page 476)

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Obviously the Network Analyzer provides a means of anticipating difficulties and exercising quantitative foresight in planning system growth and determining operating policies. Although measurements made directly on an actual system are valuable for the purpose for which they were intended, *viz.*, obtaining statistical data on load growth and recent system performance, their application is largely limited to the conditions actually encountered and measured. For anticipation of performance caused by any significant change in loads or connections, other means of measurement are necessary. Paper calculation is frequently prohibitively laborious, and except under special circumstances, the results of the direct-current calculating table are subject to serious inaccuracies. The alternating-current Network Analyzer was built primarily to fill this need.

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SUPPLEMENT TO THE JULY, 1931, ISSUE · · · PUBLISHED EXCLUSIVELY FOR M. I. T. ALUMNI

THE PRESIDENT SPEAKS

Growth and Progress of the Institute—Pertinent Facts for Alumni

By Karl T. Compton

THE Alumni Association is to be congratulated on making this Technology Review supplement available to every former student of Technology. It contains the latest and most comprehensive information obtainable about the Institute, and it is presented in order that Alumni may be fully and authoritatively informed.

There are many Alumni who have not recently been in contact with the Institute, and it is apposite that I should introduce to them our new President, Dr. Karl T. Compton, who has come to us from Princeton University to lead in the administration of Institute affairs.

S. W. Stratton
Chairman of the Corporation

IN ACCEPTING this opportunity to speak for the first time to every former student of the Institute, I am fortunately able to announce a very significant gift to Technology — significant not only because it adds to the Institute's income but because it indicates a new trend in engineering education. I refer to the Rockefeller Foundation's appropriation of $170,000 for use at M. I. T. over a six-year period as a fluid research fund for physics, chemistry, geology, and biology. This gift, the Rockefeller Foundation's first to Technology, comes in recognition of the Institute's program for strengthening its work in the fundamental sciences, they being the basis of all understanding as well as utilization of the forces and resources of nature.

This aim to be preëminent in the fundamental sciences — in order that Technology may maintain its leadership in the applied — is but one of the many notable developments to which I wish to call your attention.

You are familiar, no doubt, with the Institute's new administrative organization announced last spring. The creation of the office of Chairman of the Corporation in addition to the office of President has made possible increased effectiveness in conducting the affairs of the Institute.

It has been universally realized that a great burden of minor administrative duties renders impossible adequate consideration and effort in the interest of major items of educational policy, and that the combination of these two duties under one executive is well-nigh impossible to carry out. The division of these duties between two men has afforded a more favorable opportunity for adequately performing them. We are convinced, therefore, that the new arrangement is in principle a good one, and we are glad to say that it is proving a most happy one from the personal points of view of Dr. Stratton and myself.

Contents

Registration — Its Significance

The total number of students enrolled in the Institute during the present academic year is the largest in its history with the exception of two abnormal years immediately following the war. Of more significance than this are the facts that first, the number of freshmen is larger than in any previous year except the first year after the war, and second, the number of graduate students is by far the largest in the history of the Institute. As of November 1 the numbers were:

Freshmen	734
Total undergraduates	2,670
Graduate students	539
Total enrollment	3,209

The freshman class increased by 7% and the graduate enrollment by 23% over the preceding year. Except for the abnormal period during and immediately following the war, the undergraduate enrollment shows a remarkably regular increase from about 250 in the year 1880 up to the present figure of 2,670. The post-graduate enrollment on the other hand, was quite insignificant before the year 1918, from which time the growth to the present number of 539 has also been remarkably regular.

Besides indicating a very healthy state of growth, these facts have, we believe, a particular significance. While the undergraduate work is growing regularly at a gratifying rate, the post-graduate work is increasing very rapidly in proportion. It is evident that large numbers of prospective engineering students are attending the numerous good engineering schools now scattered all over the country, especially at the state universities, but selected ones of these groups are coming to the Institute for the final finishing touches to their engineering training. This is gratifying as indicating that the Institute is widely recognized as the leading technological school, and it also serves clearly to indicate that if the Institute is to continue in this leading position, it is absolutely necessary that the utmost attention be paid to scholarly, productive work and to the retention on the staff of the leading scientists and engineers of the country. This latter point cannot be over-emphasized because it is really the thing which determines whether the Institute shall be the leading technical institute of the country or shall play merely a mediocre rôle.

To all Former Students:

Many former students of Technology, especially non-graduates, are almost entirely out of touch with Institute affairs and their classmates, and it has been felt that such men might welcome a verbal picture of the Institute as it is today, together with a brief story of recent progress, and a summary of important news items from every class.

Therefore, the Alumni Association wishes to present to you this enlarged supplement to the July issue of The Technology Review. We are indebted to President Compton and other Institute officers, to the Review Editors, to James J. Rowlands, Director of the Technology News Service, and to the Class and Club Secretaries, all of whom have heartily coöperated in helping to prepare this comprehensive story.

We hope that you will find it attractive. Please bear in mind that it is our first experiment of this kind and undoubtedly capable of improvement, which will be made in future years if your reaction is favorable toward making this supplement an annual publication. Your comments will be most welcome. Tell us also if you are not interested in material of this kind, or if you have some ideas for making it more interesting.

CHARLES E. LOCKE, *Secretary*
The Alumni Association of the M. I. T.

Another significant feature of this registration is the fact that the present educational plant of the Institute is now being used practically at full capacity. This means that we are faced with the possibility of exercising a higher degree of selectivity in the choice of students than has hitherto been exercised. It is not planned to increase the severity of the present entrance requirements for the undergraduate courses, but rather to increase somewhat the severity of the regulations which determine whether or not a student may remain in the Institute. In the graduate school, on the other hand, a plan is being put into operation whereby only undergraduates who have made a high record will be admitted.

Loan Fund

The establishment of the Technology Loan Fund of $4,250,000 was undoubtedly the outstanding educational development of the past year. Because of its magnitude and the manner in which it is made use of, it has been widely acknowledged as a great step in financing higher education. The principle upon which it is based is that a student should pay a larger portion of the cost of his education than has been necessary in the past and yet be able to do it with a minimum of concentrated financial burden.

During the academic year just closed, $54,073 was lent to students from the Fund. The story for 1930–1931 is completely told in the following table compiled by the Loan Fund Board.

Most of the refusals listed in the table were due to unpromising academic accomplishments.

Loan funds are, of course, not new, but the scale and the intent back of the Technology Loan Fund render it unique. A recent compilation of data on student loan funds shows that 60 educational institutions had $3,750,000 outstanding, a sum less than the potential amount of funds that will be available to Technology students. The three largest institutions included in the above data had the following loans outstanding:

Yale	$740,000
Harvard	560,000
Princeton	323,000

The Technology loans bear 2% interest until two years after the borrower leaves the Institute, at which time the interest rate increases to 5% and repayments are expected according to a regular schedule of $50 every six months. At this writing, it appears certain that the demand upon the Loan Fund for the forthcoming academic year will be greatly increased. It must be remembered that 1930–1931 was the first year of operation and that the plan was announced after the majority of the students had made financial arrangements for their work. Furthermore, the increased tuition fee of $500 does not go into effect until the coming fall.

The amount loaned for the forthcoming year will probably exceed $150,000 and may run above $200,000. There is every reason for believing that this fund will be eminently successful in its two great objectives: (1) the aiding of needy and deserving students; (2) the more adequate financing of the Institute through the increased income from tuition.

	Number Registered	*Number of Applicants*	*Number Granted Loans*	*Amounts Granted*	*Number Refused*
Graduate	539	32	26	$5,631	6
Class of 1931	615	79	68	16,683	11
" " 1932	587	96	72	17,564	24
" " 1933	678	60	46	11,045	14
" " 1934	734	20	11	2,150	9
Unclassified	56	5	3	1,000	2
Totals	3,209	292	226	$54,073	66

Scholarship Aid

Of course, the Loan Fund is not the only source of funds for aiding worthy and needy students. During the past year 18.2% of the undergraduate student body received scholarship aid. A glance at the accompanying table shows how this form of assistance was distributed and how it has increased during the past four years.

The amount available for undergraduate scholarships for 1931–1932 is $83,415. The amount available for graduate scholarships during the forthcoming year is $67,960. In 1930–1931, 202 graduate scholarship awards were made totaling $48,921.

Tuition and Cost of Instruction

Since the time of the Civil War, the tuition has been increased four times, and next fall will be the fifth increase, when it is raised from $400 to $500 per year. At this figure tuition income will take care of approximately half of the total cost of instruction. Another way of stating it is that it will approximately take care of the salaries of the instructing staff. It is reasonable that in a professional school the tuition should more nearly pay for the cost of instruction than in a school of the liberal arts type, and yet the present tuition is considerably less than that which is in operation in a number of the leading liberal arts colleges. Consequently there can be little criticism of the increase which is to go into effect next year, particularly since the liberal plan of scholarships and especially the great new loan fund provide that no worthy and promising young man need forego the advantages of a scientific or technical education at the Institute because of lack of financial resources.

The cost of instruction has various interesting aspects. Of course, no one could defend extravagance in the running of an educational institution. On the other hand, no true believer in the Institute would wish its instruction to be of the type called "cheap instruction."

In this connection consider the following comparison: the average salary of a full professor at the Institute was last year $5,080. At three sister institutions the salaries of full professors ranged respectively from $8,000 to $12,000, from $7,500 to $12,000 and from $8,000 to $14,000. Our associate professors last year received an average salary of $4,040, whereas in three sister institutions the salaries for this grade are minimum $6,000, maximum $7,000; minimum $5,000, maximum $6,000; minimum $5,500, maximum $6,000. Our assistant professors receive on the average a salary of $3,130, whereas in three sister institutions the corresponding salary ranges are minimum $4,000, maximum $5,500; minimum $3,600, maximum $5,000; minimum $3,500, maximum $5,000. Our instructors' salaries do not differ markedly.

These comparisons point to a very serious situation. They show that, particularly in the higher grades, the members of our staff are receiving salaries very inferior to those in other first-class institutions, and this in spite of the fact that the competition for the services of first-class men is much keener in an engineering or other professional school than in a liberal arts college, because of the competition with industrial concerns. This situation has led to three types of results: first, the Institute has lost some of its most valuable men; second, other men have remained at the Institute at a great financial sacrifice because of loyalty to it; third, a large majority of the men on the staff have been forced to supplement their Institute salaries by income derived from services rendered to outside agencies.

The latter situation has created what is probably the most serious internal problem in the Institute. On the one hand, consulting work and engineering practice of a high grade are certainly valuable and possibly essential to the successful work of a man engaged in this profession, and certainly such work must be continued. On the other hand, it has been a serious detriment to have a situation which has forced numerous men to engage in a type of outside consulting work which does not contribute to the advancement of the profession or to the development of the individual engaged in it, but is simply undertaken because it is the means in sight for enabling the man properly to support his family. Furthermore, this practice has led to great inequality in total income to the men engaged in various types of work, very much to the detriment of those who have chosen lines of work which may be of the greatest importance to science and engineering but which do not happen to have a monetary reward at the present time.

In order to alleviate this situation, the Executive Committee of the Corporation has taken advantage of the increased income which is expected from the new tuition next year, to institute the following new plan of faculty appointments:

Promotions and new appointments for the coming year will be at a substantially larger salary than hitherto, but will be subject to the condition that the man who accepts such an appointment will agree promptly to pay over to the Bursar 50% of income received for services to parties outside the Institute. The funds thus paid in to the Bursar shall constitute what will be known as a "professors' fund" which will again be distributed as salaries among those who have been appointed on this new plan. In order not to work an injustice among those members of the present staff who have taken their position with definite understanding of opportunities for supplementing their salaries by outside work, or who have done this by common practice, any member of the present staff who is recommended for an increase in salary, will have the option of refusing this increase but remaining on the old plan with its privileges.

In its essential features this plan is not new. Obviously, this same type of problem has been a serious one for many years in many institutions. This new plan resembles that which has been adopted in some foreign universities, for example, the University of Glasgow, and which is also in force in several institutions in this country. One institution in America, namely the University of Chicago, has gone much farther than this in its professional schools of law and medicine in that appointees are required to turn back to the University all fees received for outside services.

The fundamental issue involved is really the definition of what is implied in the term of appointment to a full-time position on the staff of the Institute. There have been those who have interpreted the terms of appointment as meaning merely the attendance at the scheduled class appointments, leaving the balance of time free for any outside activity, professional or otherwise. Against this it is maintained that the standard professor's schedule, in vogue in all first-class educational institutions, is made as small as it is in hours per week with the expectation that the man shall devote the balance of his time to scholarly or professional pursuits for his own development and for the advantage of the institution. Consequently, it is maintained that a full-time position at the Institute implies actually that the full-time professional services of the appointee are for the service of the Institute in any or all of its various activities, such as teaching, research, administration, or coöperation with business and with industry.

The new plan is expected to result in greater freedom on the part of the professor in choosing his line of productive activity, and also a more equitable distribution among the staff of the financial return from their services to the Institute. Since no plan can probably be devised which will be satisfactory for all cases, some special appointments, as special lecturers or otherwise, have been made to supplement the ordinary type of new appointment. A total of 156 members of the Faculty have accepted the new plan for next year.

Scholastic Rating System

The new scholastic rating system adopted during the past year has demonstrated its worth both to the Faculty and to the student body. This numerical system, the result of three years of study and experiment, affords a measure of the student's scholastic accomplishments, shows how that accomplishment compares with the minimum requirements of the Institute, and states what a student must do in the future to maintain good academic standing. While providing a uniform and definite appraisal of the students' work, the system in actual application is supplemented by individual consideration, for the low scholastic standing of a student may be due to unusual non-academic conditions.

Ranking Students

A device for stimulating and recognizing scholarship made possible by this new scholastic rating system is the publication twice a year of a list of "ranking students." Students in this list are grouped in three divisions according to their standing and the first of such lists published at the end of the first term of 1930–1931 contained 618 names, of which 57 were in the first group, 179 in the second group, and 382 in the third. Marked copies of this list were sent to the principals of the preparatory and high schools in which the students prepared for Technology. It was also sent to the newspapers of the students' home town. It is believed that this recognition of scholarship will be of great benefit in stimulating students to higher attainments.

Honors Courses and Comprehensive Examinations

Five years ago, the Faculty voted to permit the Department of Electrical Engineering to institute honors courses as an experiment in engineering education. The students admitted to these courses were carefully selected on the basis of their past record and their personality

UNDERGRADUATE SCHOLARSHIPS

Year	*1927–28*	*1928–29*	*1929–30*	*1930–31*
Total Institute Registration	2,712	2,863	3,066	3,209
Number Registered Undergraduates	2,338	2,456	2,621	2,670
Tuition Fee	$300	$400	$400	$400
Total Funds	$62,005	$75,615	$82,815	$92,590
No. of Men's Applications	424	467	529	625
No. of Men's Awards	306	354	398	469
Total Amount to Men	$57,555	$70,186	$77,697	$85,605
Average Amount to Men	$188	$198	$195	$182
No. of Women's Applications	15	14	17	18
No. of Women's Awards	14	14	16	17
Total Awards to Women*	$3,450	$5,200	$5,250	$6,200
Average Amount to Women	$246	$371	$328	$365
Total number of Awards to Undergraduates	320	368	414	486
Percentage of Undergraduate body receiving awards	13.7%	15.0%	15.8%	18.2%
Average Amount of all Undergraduate awards	$191	$205	$200	$189

* Certain funds are by their deeds of gift available only to women.

FRATERNITY AND DORMITORY SCHOLASTIC STANDINGS

(as of end of First Term 1930–31)

Comparative Standing of 28 Chapters based on Midyear 1930–31 marks	*Comparative Standing of 28 Chapters over previous five-year period*
1. Sigma Omega Psi	1. Sigma Omega Psi
2. Sigma Alpha Mu	2. Phi Beta Delta
3. Kappa Sigma	3. Alpha Kappa Pi
4. Sigma Alpha Epsilon	4. Sigma Nu
5. Phi Beta Delta	5. Phi Gamma Delta
6. Sigma Nu	6. Sigma Alpha Mu
7. Sigma Chi	7. Theta Chi
8. Lambda Chi Alpha	8. Sigma Chi
9. Phi Kappa Sigma	9. Psi Delta
10. Phi Gamma Delta	10. Delta Upsilon
11. Delta Kappa Epsilon	11. Lambda Chi Alpha
12. Alpha Tau Omega	12. Chi Phi
13. Beta Theta Pi	13. Sigma Alpha Epsilon
14. Psi Delta	14. Kappa Sigma
15. Phi Mu Delta	15. Alpha Tau Omega
16. Theta Chi	16. Phi Mu Delta
17. Alpha Kappa Pi	17. Phi Beta Epsilon
18. Phi Beta Epsilon	18. Beta Theta Pi
19. Phi Sigma Kappa	19. Delta Kappa Epsilon
20. Alpha Phi Delta	20. Alpha Phi Delta
21. Theta Delta Chi	21. Theta Xi
22. Theta Xi	22. Phi Kappa Sigma
23. Delta Upsilon	23. Theta Delta Chi
24. Delta Tau Delta	24. Phi Sigma Kappa
25. Chi Phi	25. Phi Kappa
26. Phi Kappa	26. Delta Tau Delta
27. Phi Lambda Alpha	27. Delta Psi
28. Delta Psi	28. Phi Lambda Alpha

Comparative Rating System Average of Dormitory and Fraternity Undergraduate Groups

(Based on Midyear 1930–31 Marks)

	Dormitories	*Fraternities*
Freshmen	3.15	2.76
Sophomores	2.87	2.60
Juniors	2.97	2.76
Seniors	3.11	3.00
Average Rating	3.04	2.78

and were given unusual freedom in their work, not being required to attend classes and being permitted to follow individual lines of interest. They were, however, required to take the usual examinations in their scheduled subjects and at the close of their general course, they were required to take a severe comprehensive examination.

Last spring a survey of the results of these honors courses showed such gratifying results that the Faculty voted to permit any department of the Institute to establish similar courses. A study of the possibilities has been conducted by several departments and has led to the conclusion that probably no one method of instruction will be exactly suited to the needs of all the departments. The Departments of Chemistry and Chemical Engineering this past spring gave a comprehensive examination to members of the junior class who were taking work in this course in an effort to determine those students who were sufficiently well prepared to enter the senior year. Other departments are devising variations of the honors course plan and comprehensive examinations. The Department of Business and Engineering Administration, for instance, has announced a new option to be known as Industrial Practice. This is an outgrowth of an experiment in supervised summer employment which has been under way for the past two years. The outstanding features of this option include: (1) the requirement from a selected list of students of supervised paid work in industry during the summer vacation of the third and fourth years; (2) the allowance of a considerable freedom in the election of engineering subjects in the fourth year.

By way of parenthesis, it may be noted here that the Department of Business and Engineering Administration has been separated from the Department of Economics and Statistics. In 1916, the Course called Engineering Administration was created and its direction vested in the Head of the Department of Economics and Statistics. This latter department continues under the head of Professor Davis R. Dewey and the new Department of Business and Engineering Administration is now in charge of Professor Erwin H. Schell '12. During the first year of its existence, it has made active progress under the able leadership of its head and supported by a very loyal Visiting Committee of the Corporation and a large Advisory Committee including prominent business men, a number of whom are former graduates of this course.

Plant and Equipment

A new physics and chemistry building and a spectroscopic laboratory are now under erection. The laboratories are so situated as to close up the court of the east side of the main group of buildings. The main laboratory will be approximately 300 feet long by 60 feet wide and will contain four stories and a basement. The south half of the building will be occupied by chemistry and the north half by physics, with common facilities such as class and lecture rooms, general library, seminar rooms, and shops located near the middle of the building. The spectroscopic laboratory, which is within the court enclosed by the physics and chemistry building, is approximately 100 feet long by 60 feet wide, containing one story and a basement.

These buildings will give unexcelled facilities for research in physics and chemistry, embodying as they do many unique improvements in laboratory design. Every care has been taken to reduce vibration, and few buildings have ever had heavier foundations than the spectroscopic laboratory. More than 3,000 piles were driven for the foundation of the two buildings, and the roadway that normally would pass adjacently is to be diverted so that passing vehicles will not cause vibration.

The spectroscopic laboratory will be so well insulated against changes of temperature that if the temperature of the outside area were suddenly to change 100 degrees, it would take the interior of the building about a month to change one degree. The building is placed upon a mat composed of alternate layers of sand, felt, transite board, ground cork, and reinforced concrete. Its two floors will be supported independently from the exterior walls.

It is hoped that these buildings will shortly be supplemented by a cryogenic laboratory wherein the effects of extremely low temperatures will be studied. Such a laboratory would contain a liquid air plant, supplying the needs of the Institute and adjacent institutions, it now being necessary to obtain liquid air from scattered local sources. The laboratory would also contain liquid hydrogen and helium plants for attaining the lowest possible temperatures.

Plans have also been drawn for an experimental naval tank combined with a hydraulic laboratory. It has long been felt that there is a great opportunity at the Institute for a considerable development of work in hydraulics as a result of the ever-increasing importance of hydraulic engineering. Recent research in this field has proved the possibility of experimental solution by means of small models of a great variety of the most important, yet perplexing, problems which have to do with the relative motions of water and large bodies. Active work has recently been made possible through the generosity of Mr. J. E. Aldred of the Corporation, who has placed at the disposal of the Institute a sum of $100,000 for the initiation of work in this important field. Already there has been constructed a small experimental hydraulic laboratory which has been in operation for practically a year and in which the work accomplished has already

been outstandingly successful. The proposed naval tank and hydraulic laboratory will make possible a more comprehensive program of research, both in hydraulics and in the problems of ship design and construction.

Student Housing

Last fall the third dormitory unit was completed and has been occupied since that time. The dormitories system accommodates approximately 650 students, and together with the fraternity houses, provides very nearly the housing which appears at present to be needed by students not otherwise cared for. This gratifying situation will be even more nearly realized if the large house for foreign students, which rumor has located adjacent to the Institute grounds, is actually built in the near future.

In addition to their excellent rooms the new dormitories contain a large lounge, the Burton Room, which is most attractively furnished, is quiet and restful, and is provided with an ample supply of good reading matter in the form of current magazines and a rotating library of books loaned from the Walker Memorial Library.

On February 13, there was held a formal social event, including dinner, addresses, and dance, in celebration of the opening of the new dormitory units. At this time announcement was made of the names and inscriptions attached to the new dormitories in honor of classes and individuals. The dormitories of this quadrangle are to be known as the Alumni Group. The units in this group have been named for Charles W. Goodale, '75, James P. Munroe, '82, Charles Hayden, '90, Kenneth F. Wood, '94, Albert F. Bemis, '93, and William W. Walcott, '01. The lounge, which will be the social center for all the present dormitories, is called the Burton Room in honor of Dean Alfred E. Burton, who labored so zealously for the establishment of dormitories and student government at Technology. In addition to these inscriptions, there will be suitable tablets provided to commemorate the generous participation of the Alumni, and in certain cases for the naming of rooms after class or individual donors.

Excluding buildings now under construction, the present book value of the Institute land, buildings, and equipment totals $14,009,998.98.

Institute Finances

Many Alumni will be interested in the Institute's financial status. The figures are not yet available for the fiscal year which ended June 30, 1931, but as of June 30, 1930, the Institute's net operating income exceeded the two million dollar mark for the fifth consecutive year and was less than $400 short of being two and three-quarters million. The Institute's total investments as of June 30, 1930, had a book value of $33,148,985.38, exclusive of certain separately invested funds and, of course, the Technology Loan Fund. When the contributors to this Loan Fund have completed their payments (they are scheduled over a ten-year period), it will total $4,250,000. Net operating expenses during fiscal 1930 were at the rate of $7,600 a day (not including $3,100 a day for research and special payments) as against $7,150, $6,300, $6,200, $6,000, and $5,444 for the five previous years.

The expenses for last year were distributed roughly as follows:

Academic	$1,613,000
Administration	322,000
Plant Operation and Maintenance	426,000
Miscellaneous	196,000
Special Funds and Appropriations	1,348,000

For the year ending May 1, 1931, the Institute received in gifts and bequests a total of $1,568,655.65. For an itemized list of these gifts and bequests see page VII.

Operating the Educational Plant

Some interesting figures derived from the Bursar's office give an idea of the magnitude of the Institute's physical plant. It consumes an average of 33 tons of coal per day, 17,500 cubic feet of gas, and 250,000 gallons of water. The cost of its telephone service amounts to $16,000 a year. The dining service in Walker Memorial supplies 1,200 meals a day at an average price of 33 cents.

Corporation Changes

It is with regret that I record the resignation of Mr. Otto H. Kahn from the Corporation, and with great sorrow that I record the loss by death of Mr. Samuel M. Felton, '73, Mr. William E. Nickerson, '76, Mr. Frederick P. Fish, Mr. George Wigglesworth, and General Coleman du Pont, '84.

To replace the Term Members, Andrew G. Pierce, Jr., '85, Salmon W. Wilder, '91, and John L. Mauran, '89, whose terms expired in June, there were elected as Term Members, Messrs. Godfrey L. Cabot, '81, William D. Coolidge, '96, and Redfield Proctor, '02.

At the February meeting of the Corporation there were elected to Life Membership: Mr. John R. Macomber, '97, President of Harris Forbes and Company, and at the time a Term Member of the Corporation, also Mr. Albert S. Wiggin, President of the Chase National Bank and Director of numerous corporations, and Mr. Alfred Loomis, Vice-President of Bonbright and Company and physicist, operating very effectively probably the finest private physical laboratory in the world. At the June meeting of the Corporation, Mr. John J. Pelley, President of the New York, New Haven & Hartford Railroad, was elected a Life Member.

General

I hope that the material which I have presented above will serve to inform the 20,000 alumni who will receive it of the work that the Institute is doing and the achievements toward which it aspires. I wish to emphasize the importance of the large part they have played in what the Institute has already done and the necessity of their coöperation in what it is to do.

Since coming to the Institute I have had the opportunity of visiting a score of Technology clubs throughout the country, and the interest that I have found among the alumni of these clubs has been gratifying and encouraging. I see this activity further reflected in the work and deliberations of your Alumni Council here in Boston, and I have been much interested in the study that body has been making of the present organization of the Alumni Association and the possibility of improving the method of selecting term members of the Corporation. I understand that a reorganization plan has been sent to all members of the alumni body together with a referendum designed to elicit the corporate opinion of the Alumni on these two vital problems.

I am sure that they will be solved in a way conducive to the end toward which we are all working — the maintenance of the Institute's educational leadership.

INSTITUTE AFFAIRS

1930–1931

EXPANSION is the best single word applicable to the manifold accomplishments of the past academic year at Technology. Expansion, for example, in the total registration to 3209 (previously unexceeded except in two immediate post-war years), in the size of the freshman Class of 1934 and the numbers of Graduate Students, both of which groups were larger than in any previous year; expansion in the scale of Faculty salaries, in the ways and means for financially aiding promising students, and in the Institute's physical plant. That it has been an abundant year which augurs well for 1931–1932 is made manifest by reading the statement of President Compton beginning on page 1.

A vastly increased student body is by no means the Institute's primary objective. As evidence, however, that its prestige, nationally and internationally, is being maintained and enhanced, a continued growth in the number of applicants each year since 1926–1927 is refreshing. Moreover, such a continuing growth by continually pressing to the fore the acute needs for increased staff, space and equipment to handle the larger numbers, impels earnest and thoughtful consideration of the proposition to limit the size of certain classes or courses, or both, by selecting only those best qualified to benefit therefrom.

This problem is a fundamental one and already restrictions have been placed on the course in Aeronautical Engineering. The Scholastic Rating System introduced this past year gives the Institute a device by which limiting measures may be fairly and easily effected at such times as they may be deemed expedient. This system, formulated through studies made by the Registrar's office over the past three years, provides an index of a student's accomplishment at the end of each term and, in addition, a cumulative up-to-date index of his entire academic career. Its immediate use is to provide for the student and his parents, as well as for the Faculty, an unavoidable and direct measure of the academic benefit he is deriving from continuance at the Institute.

One of the announced purposes of the tuition increase to $500, effective for 1931–1932, was to increase Faculty salaries. In its application the introduction of a new policy with respect to full-time staff appointments has also been accomplished. This deals with the matter of outside consulting work and other non-Institute professional activities of full-time Faculty members during regular term times, and its provisions are outlined by President Compton on page III. Changes in the Faculty are also given in detail on page IX and perhaps none will cause more widespread alumni satisfaction than the Assistant Professorship conferred upon James R. Lambirth, "Master of Iron," under whose tutelage have sat nearly fifty undergraduate Classes.

With the beginning of 1930–1931 the new dormitory halls, which have now been formally designated as the Alumni Group, were placed in operation. From an experimental housing accommodation for less than 150 students in 1916, the Institute's dormitory facilities have been expanded over four-fold. The fundamental — and somewhat unique — operating principles have been maintained during the decade and a half without change: first, to make the Institute's dormitories so attractive in price, equipment, and living conditions that there need be no *regulation* requiring any student, or group of students, to live therein but instead to have the demand for rooms exceed the supply; second, that student government shall prevail throughout the dormitories in fact as well as name. It is believed that Technology now has the only university dormitory system of its size operated entirely without the presence of proctors.

The import of the provision of two buildings for increased research in the fundamental sciences and the grant to prosecute such studies from the Rockefeller Fund is referred to in Dr. Compton's statement on page I. Provision of space for research in these buildings will, of course, operate somewhat to relieve the pressure in certain portions of the existing plant and thus serve partially to care for the increasing needs for instructional purposes.

In keeping with the spirit of the year the Alumni Association made its Annual Dinner for the first time a non-stag affair. Though opposed in principle, particularly by a group from one of the more active though slightly middle-aged classes, the unanimity of opinion subsequent to the dinner confirmed the good judgment of the Association's President, Senator T. C. Desmond, '09, who effected the change.

Open House, the ninth to be held at the Institute, was for 1930–1931 entirely a student affair, run under the guidance of the Combined Professional Societies. It, together with the *1931 Technique* — a volume resplendent in a new format (by which *The Tech* declared the management of this annual publication "has brought to itself a new reputation, and has distinguished itself in a manner most praiseworthy") — represent the two outstanding activity accomplishments of the 1930–1931 student government headed by Harold P. Champlain, President of the Senior Class and Chairman of the Institute Committee.

That the close of 1930–1931 might be signalized by appropriate bonfires and pre-examination ceremonies, the night of May 17-18 witnessed what a certain circulation-starved component of the daily press in desperation for a snappy lead on a dull Monday morning front-page was pleased to dub, "Wild Riot at Tech . . ." The celebration was participated in by students resident in the dormitories, by members of the police and fire departments of Cambridge. It was strictly confined to the Technology grounds and property damage was restricted to the burning of one old door plus a number of planks and valueless débris left about by Major Smith's able assistants.

Contrary to press accounts no furniture, mattresses or pillows were burned, no expensive shrubbery was wrecked, there was no "wild assault on firemen." Several lengths of hose and at least a helmet or two seem to have been temporarily borrowed from the Cambridge firemen but the last of these were returned in good order by a delegation of students who called on Chief Casey on Tuesday to present him with several boxes of cigars, an apology and congratulations for his good sportsmanship. This terminated what is to be historically recorded in the Institute's archives as the "Boston *Post* Riot."

Notes on the Institute Faculty

SAMUEL C. PRESCOTT, '94, this year completes his term of two years as Chairman of the Faculty and he is to be succeeded by Frederick S. Woods, Head of the Department of Mathematics.

Professor Davis R. Dewey, Head of the Department of Economics and Statistics is now the senior member of the Faculty. Following him in seniority are: William Hovgaard, Frank Vogel, Allyne L. Merril, '85, Edward F. Miller, '86, Frederick S. Woods, Harry M. Goodwin, '90, Dugald C. Jackson, John O. Sumner, and Frederick H. Bailey.

The Faculty Emeriti, headed by Professor Robert H. Richards, '68, now has six members. Professor Richards is still in good health and active in his personal affairs although he will reach the age of 87 years this autumn. In 1929, he went all alone on a three months' trip to the World Engineering Congress in Japan, where he was royally entertained in Tokio by his old student, Baron Takuma Dan, '78. He retains his old-time interest in banquets even though he insists on bringing his own food, which consists of a package of crackers and a jar of milk.

Professor Cecil H. Peabody, '77, lived for awhile in the Back Bay after his retirement, but more recently he has established himself in Washington, where he

and Mrs. Peabody are enjoying the activities of the national capital. — Professor Alfred E. Burton does not confine himself to one place, although he makes his headquarters with his son on Joy Street, Boston, from which vantage point he maintains a close touch with Institute affairs.

Professor Dwight Porter continues to live in Malden, enjoys excellent health, and is quite a regular attendant at the frequent faculty luncheons that are given at Walker Memorial. — Dr. Harry W. Tyler, '84, and his wife are located in Washington, where he is privileged to have a large desk upon which to rest his feet when he is not occupied with his duties as Secretary of the American Association of University Professors, and Consultant in Scientific Literature for the Library of Congress. Dr. Tyler's name has been on the books of the Institute for 50 years, as a student, instructor-on-leave, and professor. He taught for 44 years, being exceeded by Dewey, Miller and Robbins with 45, Merrill and Richards with 46, Cross and Lambirth with 47 (the longest service of anyone) and equalled by Augustus H. Gill, '84. — Dr. Arthur E. Kennelly is still an active resident of Cambridge.

There are now living three retired members of the Faculty. Professor C. Frank Allen, '72, is one of the active members of the Alumni Council and a regular visitor at Technology. Dr. Henry Fay has been in poor health ever since his retirement. Professor Dana P. Bartlett, '86, makes his headquarters in Boston, but has been enjoying travels. One of his first trips after his retirement was to Tahiti, where he made a very enjoyable visit to Harrison W. Smith, '97.

George F. Swain, '77, is another former member of the Faculty who is no longer connected with Technology, but who was well known to many students. He went from Technology to Harvard, and a few years ago suffered a paralytic stroke, which left him physically incapacitated. His mind is as keen as ever, so that he enjoys calls from his old friends.

Gifts and Legacies

DURING the year ending May 1, 1931, the following gifts and legacies were made to the Institute. The first group includes capital gifts and the second miscellaneous gifts for current use.

CAPITAL GIFTS:

Francis and William Emerson, for Student Aid	$1,200.00
Horace Herbert Watson Fund, for Endowment	20,577.75
Wilfred Lewis Fellowship in Mechanical Eng.	5,000.00
Estate of Ida F. Estabrook, for Plant	320.00
Alexis H. French Fund, for Endowment	5,000.00
Textile Research Fund	42,694.10
J. A. Grimmons, Perpetual Loan Scholarship	2,834.98
James H. Haste Fund, for Student Aid	$141,845.63
Susan Minns Fund, for Hydraulics	40,000.00
Treasurer's Fund, additional	181.25
Class of 1896 Fund, additional subscriptions	345.00
Esther A. Hilton Fund, for general purposes	1,626.67
Educational Endowment Fund, Payments	215.00
Contributions to Industrial Fund	12,500.00
Alumni Dormitory Payments	2,830.50
F. G. Webster Fund, for Endowment	25,000.00
Francis E. Weston Fund, for Scholarships	10,000.00
Frick Fund, for Endowment (additional)	200,000.00
F. J. Moore Fund, for Departments (additional)	7,000.00
George Blackburn Memorial Fund, for Endowment	830,046.28
TOTAL	$1,349,217.16

MISCELLANEOUS GIFTS:

Charles Hayden, for Poughkeepsie Crew Race	$2,000.00
Lammot du Pont, for general purposes	50,000.00
American Tel. & Tel. Co., for Course VI-A (1930–31)	5,000.00
Redfield Proctor, for Graduate Scholarship	1,000.00
J. E. Aldred, for Hydraulics	6,900.00
Lammot du Pont, for Boat House	2,000.00
Contributions for Tuition	450.00
Boston & Maine Railroad, for Course I-A	3,000.00
Contributions for Course XV Fund	115.00
A. P. Sloan, for Graduate Scholarship	1,000.00
H. M. Crane, for Graduate Scholarships	1,000.00
E. I. du de Nemours Co., for Fellowship	1,500.00
Albert Fund, for Student House	7,500.00
General Electric Co., for Courses VI and VIII	20,000.00
H. M. Crane, for Diesel Engine Research	2,000.00
F. W. Fabyan, for Course XV Publicity	1,579.75
J. R. Macomber, for Course XV	500.00
W. D. Binger, for Civil Engineering Department	200.00
Godfrey L. Cabot, for Fog Research at Round Hill	1,000.00
L. J. and Mary E. Horowitz, for course in Building Construction	11,000.00
Eastman Kodak Co., for Biocinema Research	$1,494.74
J. R. Freeman, for Traveling Fellowship in Hydraulics	200.00
Goodyear Tire & Rubber Co., for Research at Round Hill (1929)	2,300.00
Col. E. H. R. Green, for Research at Round Hill (1929–30)	67,700.00
Col. E. H. R. Green, for Research at Round Hill (1930–31)	20,000.00
Rockefeller Foundation for Research	10,000.00
TOTAL MISCELLANEOUS GIFTS	$219,439.49
TOTAL CAPITAL AND MISCELLANEOUS GIFTS	$1,568,656.65

Technology Loan Fund

The contributors to the Loan Fund of $4,250,000, described on page II, are: George Eastman, Charles Hayden, '90, Alfred P. Sloan, Jr., '95, Edwin S. Webster, '88, John E. Aldred, Charles A. Stone, '88, Gerard Swope, '95, Franklin A. Park, '95, Frank L. Dame, '89, Coleman du Pont, '84 (deceased), Irénée du Pont, '97, Lammot du Pont, '01, Pierre S. du Pont, '90, Albert G. Davis, '93, Charles Neave, '90, William C. Potter, '97, Alumnus of '94, Wm. E. Nickerson, '76 (deceased), William R. Kales, '92, Edward L. Hurd, '95, Eugene H. Clapp, '95, George Wigglesworth (deceased).

The contributions of these men are being paid over a period of ten years in equal installments.

Review of Athletics

OF all Technology's various athletic accomplishments during the past few years, the crew's showing in the Poughkeepsie Regatta last June was by far the most outstanding. Several of the regular varsity men were unable to go to Poughkeepsie for this annual classic, but their vacancies were filled with men from the Junior-Varsity Crew (undefeated for 1930). Rowing against the finest crews in the country and against tremendous odds, the M. I. T. boat performed brilliantly. Leading for the first mile and three-quarters, they held second place in the next mile and a half, and finished third, nine lengths behind the victor, Cornell, and far ahead of those whom experts selected to win.

This came as a wonderful close to a most successful season. The Junior Varsity crew came through undefeated and the Varsity established itself as one of Technology's outstanding crews.

This spring the Technology Varsity has lost to Navy and Columbia and was third in the triangular race with Harvard and Princeton. The Junior Varsity defeated Navy and lost to Harvard and Princeton. The 150-pound crew lost to Navy and was second in the Harvard-Princeton-Technology Regatta on the Charles. Through

the generous gift of an anonymous alumnus, both the Varsity and Junior Varsity crews will participate in the Poughkeepsie regatta. By the time this information is printed, this classic for 1931 will be history, and we feel sure that Technology will make a most presentable showing.

The indoor track season found Technology entered in the K. of C. Millrose, and B.A.A. games. Technology finished second in the K. of C. Relays against Maine and Brown. For the spring season the track team has held dual meets with the University of Maine and the University of New Hampshire — losing both by the scores of 82–53 and 93–40, respectively. In the Greater Boston Intercollegiate Track Meet held at the Harvard Stadium, Technology finished fourth. The track team will participate in the N. E. I. C. A. A. to be held at Lewiston this year. Technology has several outstanding performers, but due to the lack of numbers the second and third places usually go to the opponents.

In Cross Country last fall, Technology fared a little better, defeating the U. S. Military Academy and the University of New Hampshire in one triangular meet and in another with Harvard, Dartmouth, the engineers placed second, only a few points behind Harvard. Technology was fourth in the N. E. I. C. A. A. and thirteenth in the I. C. A. A. A. A. meets.

The basketball schedule included ten hard games, with Technology winning six and losing four. Among the vanquished were Newport Naval Training School, St. Michael's, Clark, Tufts, Pratt, and New Hampshire. Harvard, Brown, Williams, and Lowell Textile defeated the Institute team — all by close scores.

In fencing, Technology lost seven meets and won three. The team, however, won second place in the épée competition of the Intercollegiate Fencing Association. One of its men won individual honors.

The Hockey season was not particularly successful although a well-deserved and hard-fought victory over West Point aided much in removing the sting of early season defeats. The boxing, wrestling, swimming, golf, and tennis results, while not over-crowded with victories in the dual matches, furnished much close competition.

When one considers the unusually heavy schedule of classes which must be carried by all students, Technology Alumni have reason to be proud of the showing made by Technology teams. Wherever any Technology team goes, it is received most heartily because of its real sense of clean sportsmanship and gameness. Institute athletics received a clean bill of health in the recent investigation of college athletics by the Carnegie Foundation — one of the few institutions that did. Many of the athletic reforms now being talked about at many universities and installed in a few have long been embodied in the Institute system. Technology has, by the wisdom of its Athletic Advisory Council, pursued an even, sensible course in its sports program, and there are consequently no problems of over-emphasis here.

From a Friend of Thousands of Technology Men

SINCE 1890 Mrs. Ellen A. King has been a friend and adviser to thousands of Technology men. Realizing the great place which she holds in the hearts of Alumni, The Review has induced her to record a few of her memories of the '90's in Rogers Building.

Mrs. King is now a librarian of the student and faculty libraries in Walker Memorial and in that position, no less than in her position in the old Rogers Building, she still plays a large part in the student affairs of Technology. But let one of the most beloved personages of the Institute speak directly:

"In the fall of 1890 on the first day of the college year, a frightened young woman stepped from a blue horse car in front of Rogers Building and entered the basement, which had been fitted as kitchen and dining room to provide luncheon which the young woman was to manage. The doors were to open at eleven o'clock; and it was with painful apprehension that she watched the hour approach. She need not have feared, as there was no display of unfriendliness or lack of coöperation from the students on that morning or in the days that followed.

"There were no lounge rooms and but one student activity had a place to call it's own. The office of *The Tech* was an attractive room on the third floor of Rogers overlooking Boylston Street. *The Tech*, in magazine form, was a weekly publication, less journalistic than *The Tech* of today. All manuscript was written in long hand; they had no telephone. One Institute telephone was in the Bursar's office, which no one attempted to use excepting in an emergency and with half an hour to spare. Later there were two others in a booth back of the information office. The editor-in-chief of *The Tech* at this time, a brilliant student, concluded to promote some publicity. Fliers in the form of a square of white paper were distributed through the building, and upon the paper was printed:

'There's a story that's new, and also true,
Of the Bursar and the Bird;
You want to hear it, I'm sure you do, —
The Bursar and the Bird.
If you don't buy The Tech you will surely rue
That you didn't read the story through,
Which the Lounger is waiting to tell to you
Of the Bursar and the Bird.'

The Bursar was a dignified gentleman, pedantic in speech, formal in manner, and a bachelor. Everyone knew the 'Bird,' a fearless maiden lady who had charge of the 'cage.' There was great excitement and some indignation on the morning of the issue. It was learned that *The Tech* had been suppressed, and that the editor-in-chief had been called into conference with the distinguished professor who was *The Tech's* adviser.

"There were many watching the door of the laboratory. Presently it opened and the editor smiling triumphantly came forth. Almost simultaneously *The Tech* went on sale and the edition was sold out. The story was innocent and harmless; the publicity a success.

"Junior Week was full of gay and unusual events. Up in *The Tech* office there was a reception, flowers, shaded lights, and pretty girls to pour tea for the visitors, which included professors and their wives and sometimes the President!

"And the *Technique* rush! A booth at the end of Rogers corridor, a mass of students wedged tightly from wall to wall. Suddenly a man would be lifted to the top of the swaying crowd of heads and begin to crawl towards the booth, helped by friends, hindered by foes. Another man was boosted up and still another. Perhaps one of the three would reach the coveted prize, a book not a paddle. It would seem to the person looking on that much damage and many injuries would result, but no. A few minor bruises, some broken glass, a section of stair rail — not much to pay for a good contest.

"Often in the afternoon between four and six o'clock, the lunch room became the meeting place for various committees, for conferences, even for counting ballots. Some students of today would be greatly encouraged if they could read 'extracts from a freshman's diary,' written in 1891, and know that the freshman who wrote those extracts is now a Professor of note. It would take a chapter by itself to pay tribute to the mining engineers who did their assaying in the other half of the basement. There were the most friendly relations between the professors of the department and the students, perhaps because they worked together for many hours. Do not think that those men, preparing for a life of hardship where there might be little use for culture, had no developed taste for the finer arts. There is a book extant today, a gift from a mining engineer in 1894. It's title is 'Marcus Aurelius'. Another man of the group carried a book of poems, many of which he could recite. Perhaps some member of the staff of the *Cosmopolitan* may recall a verse, which once formed the head piece of their magazine, beginning:

'Oh turn thy rudder hitherward awhile
Here may the storm bitt vessel safely ryde.'

It was a favorite quotation of the student. They often read letters from others already established with mining companies, from Montana, from Mexico, from Alaska. In '98, six autographs were written by students from Mexico. Alas, it was reported that two of the number met a violent death at the hands of assassins in the revolution.

"Will a properous engineer of Boston remember writing over his name, 'Good ice must come from good water?' And a

distinguished scientist of today, will he remember: 'The best plan is, as the common proverb has it, to profit by the follies of others.' And a man who has kept in close touch with Technology for 40 years: 'What do you call a man who is turned down? — A politician. And a man who is not turned down? — A wizard.' And the men of the '90's, one and all, will remember the many times that they foregathered on Rogers' steps and cheered with a will for President Walker and Technology."

ELLEN A. KING

Faculty Promotions and New Appointments

INFORMATION from the Office of the President has been received regarding the promotion of Professor Erwin H. Schell, '12, and C. Fayette Taylor to Department Heads (Business and Engineering Administration, Aeronautical Engineering, respectively).

Promotions to the grade of full professor in their respective departments include: Arthur A. Blanchard, '98, Inorganic Chemistry; Earle Buckingham, Engineering Standards and Measurements; Otto G. C. Dahl, '21, Electric Power Transmission; Frederick K. Morris, Geology; Richard H. Smith, '18, Aeronautical Engineering; Robert H. Smith, Machine Construction; Walter C. Voss, Building Construction; Louis J. Gillespie, Physico-Chemical Research.

Newly promoted associate professors in their respective departments include Evers Burtner, '15, Naval Architecture and Marine Engineering; William A. Crosby, '17, English; Hoyt C. Hottel, '24, Fuel and Gas Engineering; William H. Jones, '09, Mechanical Engineering; Clifford E. Lansil, '17, Electrical Measurements; Fairfield E. Raymond, '21, Industrial Research; Penfield Roberts, English; Frank J. Robinson, '08, Architecture (half time); and Dr. F. H. Slack, Public Health Laboratory Methods (part time).

F. Leroy Foster, '25, James W. Pratt, and John P. Walsted, '29, Mining; Richard H. Frazier, '23, Harold L. Hazen, '24, and Parry H. Moon, '27, Electrical Engineering; William C. Greene, English and History; John F. G. Gunther, '23, Architecture (half time); James R. Lambirth, Mechanical Engineering; Johnson O'Connor, Industrial Research, Business and Engineering Administration; Albert A. Schaefer, Business Law (half time); and Samuel D. Zeldin, Mathematics; all rise to assistant professors in the departments named above.

The coming school year brings a large number of new men to the Institute. Colonel Samuel C. Vestal has been appointed Professor of Military Science and Tactics and Head of the Department. To the Chemistry Department has been added Louis J. Bircher, Visiting Professor. To the Electrical Engineering Department will come Ralph D. Bennett, Associate Professor.

Associate Professor Robert C. Eddy will be the only addition to the staff of the Department of Business and Engineering Administration. Louis B. Slichter enters the Department of Geology as Associate Professor.

Three new assistant professors, Victor Guillemin, Philip M. Morse, and Wayne B. Nottingham will enter the Department of Physics.

Alumni Association Statistics

AT the present time the Alumni Association has on its records good addresses for 19,859 graduates and former students of M. I. T. Of this number, 15,162 are members of the Association by virtue of either being graduates of the Institute or by affiliation as associate members. As of May 1, 1930, the total membership was 14,614. From May 1, 1930, to May 1, 1931, this figure has been increased by 483 graduates of the Class of 1930 and the election of 221 non-associates to membership. In this same period, the membership has been decreased by 85 deaths, 12 resignations, and 59 associate members dropped through nonpayment of Association dues. Of the 85 deceased, 9 were Life Members in the Association.

From May 1, 1930, to May 1, 1931, 7591 members paid Alumni dues, which is 50% of the total membership. In the fiscal year 1929–1930, the percentage paying dues was 52.5. Of the 7591 dues collected as of May 1, 1931, 5785 were in the classes graduated more than five years, who paid $5.00; 1806 were in the last five classes to graduate and paid $3.00.

In collecting 7591 Association dues payments, 59,160 mail pieces were sent to Alumni and former students. In all, 72,412 copies of the nine issues of The Review were mailed during the past year and 13,000 copies of the supplement you now are reading. From the handling of other official duties of the Association, such as the mailing of the annual ballot, referendum notices, and council minutes, 37,345 more mail pieces were sent, bringing the grand total for the year to 181,917. These figures show most plainly the friendly relations existing between Uncle Sam and the Association Office.

Alumni Association Elections

AS a result of the balloting by Alumni this spring, the following four men were nominated to the Corporation, the legal governing body of the Institute: William S. Forbes, '93, President and Treasurer of the Forbes Lithograph Manufacturing Company, Boston; Henry E. Worcester, '97, Vice-President of the United Fruit Company, Boston; Francis J. Chesterman, '05, Vice-President and General Manager of the Bell Telephone Company of Pennsylvania, Pittsburgh; and Thomas C. Desmond, '09, New York State Senator, Newburgh. The first of these, Mr. Forbes, was nominated to fill the unexpired term of the late William E. Nickerson, '76. The other nominees will serve terms of five years. Nomination by the Alumni Association is equivalent to election, the Corporation having always accepted its recommendations.

There seems to be an affinity between the Class of 1909 and the Presidency of the Alumni Association. To succeed Mr. Desmond, '09, as President of the Alumni Association for a term of one year, Bradley Dewey, '09, was elected, the second of that Class to become President. Mr. W. Malcolm Corse, '99, was elected a Vice-President of the Association for a term of two years to succeed Francis J. Chesterman, '05, whose term expired in June, 1931. The two new members of the Executive Committee are Mr. William H. Coburn, '11, and Mr. Harold S. Wilkins, '14. Professor Charles E. Locke, '96, and Mr. Bradley Dewey, '09, whose terms on the Executive Committee expired in June, will be replaced by Mr. Coburn and Mr. Wilkins who will serve for two years.

The newly elected Class Representatives are as follows: Class of 1887, Giles Taintor replacing Samuel P. Mulliken; Class of 1892, Charles F. Park replacing Frank C. Shepherd; Class of 1907, Harold S. Wonson replacing Lawrence Allen; and Class of 1912, John H. Lenaerts replacing John L. Barry. Messrs. C. Frank Allen, '72, Belvin T. Williston, '77, Alfred L. Darrow, '82, Charles W. Bradlee, '97, Frederick H. Hunter, '02, Harold E. Lobdell, '17, William W. Russell, '22, and John D. Crawford, '27, were re-elected by their respective classes to serve as representatives.

The following men were elected Representatives-at-Large for two years: James R. Cudworth, '21, Martin H. Eisenhart, '07, William C. Furer, '06, Lauren B. Hitchcock, '20, and Ellis F. Lawrence, '01.

As a result of the report of the Nominating Committee, Hamilton L. Wood, '17, was re-elected to serve on the Committee on Assemblies until 1936; Charles F. Read, '74, to serve on the Committee on Historical Collections until 1936; and Horace S. Ford, Bursar, to serve on the Committee on Permanent Funds until 1934.

In accordance with the report of a special Nominating Committee the following men have been elected or re-elected to their respective Advisory Councils: *Advisory Council on Athletics:* Dr. John A. Rockwell, '96, until 1934 to succeed himself; *Advisory Council on Boat House:* Allan Winter Rowe, '01, Secretary, to succeed himself; Robert C. Dean, '26, until 1933, new additional member; *Advisory Council on Musical Clubs:* Charles A. Whittemore, '01, until 1934 to succeed himself; Ralph T. Jope, '28, until 1934, new additional member; *Advisory Council on Undergraduate Publications:* A. W. K. Billings, '26, until 1935, new additional member; *Advisory Council on Tech Show:* Delbert L. Rhind, Assistant Bursar, until 1934 to succeed himself; Hiram Y. Waterhouse, '15, until 1933, term extended an additional year; *Advisory Council on Walker Memorial:* Harry J. Carlson, '92, until 1934 to succeed Marshall B. Dalton, '15; Clair E. Turner, '17, until 1933, term extended two years; *Advisory Council on the M. I. T. Flying Club:* Godfrey L. Cabot, '81, Porter H. Adams, '14, and Albert F. Hegenberger, '17, all to serve until 1934.

ADVERSARIA

Honoring Technology Scientists

¶ Among the 28 of America's foremost scientists whose names have recently been inscribed on stone tablets above the entrance to the new Buhl Hall of Science at the Pennsylvania College for Women are six who are graduates or former members of the Faculty of Technology.

The names of the men of Technology include that of Dr. Karl T. Compton, President of the Institute; Dr. Edmund B. Wilson, formerly a member of the Faculty in the Department of Biology and Public Health, and now at Columbia University; Dr. Arthur A. Noyes '86, formerly a member of the Faculty in the Department of Chemistry, and acting President of the Institute from 1907–09, now Director of the Gates Chemical Laboratory at the California Institute of Technology; Dr. George E. Hale '90, a distinguished astronomer and honorary director of Mount Wilson Observatory; Dr. Willis R. Whitney '90, former member of the Corporation, and now director of research for the General Electric Company; and Dr. Gilbert N. Lewis, former member of the Faculty in the Department of Chemistry, and now on the staff of the University of California.

The names of the 28 scientists were chosen by a vote of the 902 starred scientists listed in American Men of Science.

Awarded

¶ To Karl T. Compton, President of Technology, the Rumford Medal, one of the most distinguished scientific honors in the world. This was given by the American Academy of Arts and Sciences in recognition of Dr. Compton's contributions in the field of thermionics and in spectroscopics.

¶ To Edwin S. Webster '88, a $1,000 prize for a garden he displayed at the Spring Flower Show of the Massachusetts Horticultural Society. His exhibit of orchids was awarded the Gold Medal.

¶ To Willis R. Whitney '90, the Franklin Medal, for researches conducted under his direction in the General Electric Company's laboratories at Schenectady, N. Y.

¶ To Edward C. Wente '14, the John Price Wetherill medal for his contributions to the design and construction of condenser transmitters.

¶ To Otto G. C. Dahl '21, one of the two fellowships granted to engineers by the John Simon Guggenheim Foundation.

¶ To Lester B. Bridaham '23, one of the eight American Field Service Fellowships from the Institute of International Education, which carries a stipend of $1,400 for one year. He will study rural architecture of Normandy and Brittany.

¶ To Carney Goldberg '28, the annual $3,000 Rotch traveling scholarship which will enable him to tour the architectural centers of Europe for two years.

Honored

¶ John R. Freeman '76, at a dinner given by the Providence Engineering Society as a testimonial to his world wide activities in engineering, insurance, geology, seismology, and philanthropy. Mr. Freeman, a native of Maine, has traveled far in his chosen profession and also has achieved distinction in the business world. In his commissions as an engineer he has received appointment from the President of the United States to study special problems of the Panama Canal: other commissions have taken him to various parts of this country and to China. Since his graduation from Technology he has received honorary degrees of Doctor of Science from Brown University in 1904; Tufts College in 1905; and the University of Pennsylvania in 1927. He also received the degree of Doktor Ingenieurs, Ehrenhalber, der Sachiche Technischen Hochschule, Dresden, Germany, in 1925. He is a member of the Corporation and an ardent supporter of the Institute's work in hydraulics.

¶ George E. Hale '90, in an address given at a dinner in honor of Einstein at the California Institute of Technology, for being influential in establishing the Mt. Wilson Observatory and the California Institute of Technology.

Elected

¶ Willis R. Whitney '90, to membership in the American Philosophical Society.

¶ Proctor L. Dougherty '97, to the Presidency of the University Club of Washington, D. C.

¶ Leroy D. Peavey '98, to the Presidency of the Boston chapter of the American Statistical Association.

¶ Frank D. Chase '00, to the Presidency of the Western Society of Engineers.

¶ Myron H. Clark '03, to the Vice-Presidency of the Reading Iron Company in charge of operations.

¶ Frank C. Reed '03, to the Vice-Presidency of the Westinghouse Electric Elevator Company.

¶ Allyn C. Taylor '06, to the Presidency of the Consumers Gas Company of Reading, Pa.

¶ George W. Repetti '16, to the Vice-Presidency of the Holly Sugar Company of Stockton, Calif.

¶ Dugald C. Jackson, Head of the Department of Electrical Engineering, to membership in the American Philosophical Society. Mr. Jackson was also re-elected chairman of the National Research Council's Division of Engineering and Industrial Research at a meeting recently held in New York City.

Spoke

¶ Samuel W. Stratton, Chairman of the Corporation, in behalf of the university world at the inauguration of Dr. Harry W. Chase as President of the University of Illinois, on May 1.

¶ Welles Bosworth '89, recently, on architectural restorations in France, before the American Club in Paris. Mr. Bosworth has designed and is directing the work of the Rockefeller restorations in France.

Advocated

¶ By William Z. Ripley '90, the creation of a new position in the Cabinet to be known as Secretary of Transportation. Professor Ripley believes that such an official "would have just the prestige and authority to enforce discipline on the industry that it needs."

Written

¶ By Seth K. Humphrey '98, an article "Rushing the Cherokee Strip" which appeared in the May, 1931 *Atlantic Monthly*.

¶ By James A. Tobey '15, an article "White Bread versus Brown" which was published in the May, 1931 *American Mercury*. There also appeared an editorial note about Mr. Tobey's career in the same issue.

¶ By Otto C. Lorenz '18, and Harold M. Mott-Smith '93, a book on "Financial Problems in Installment Selling."

¶ By Edward Ellsberg '20, a book called "Pigboats." Mr. Ellsberg is the man who raised the *S-51* from its grave 130 feet below the surface and as a result was promoted to the rank of Commander in the United States Navy. He is chief engineer of the Tidewater Oil Company of New York.

Appointed

¶ Samuel C. Prescott '94, a delegate of the Second International Congress on the History of Science and Technology to be held in London, June 29–July 3.

¶ Farley Osgood '97, to the Chairmanship of the Finance Committee of the American Engineering Council.

¶ Charles P. Tolman '02, to a membership in the Committee on Communications of the American Engineering Council.

¶ Edwin E. Aldrin '17 and Edward P. Warner '17, to memberships in the Committee on Air Transport Service in Foreign Commerce of the American Engineering Council.

¶ CHARLES W. PIPKIN, Instructor in English and History at the Institute 1920–22, Dean of the Graduate School of the Louisiana State University.

Analyzed

¶ By JOHN A. ALLAN '12, a bed of pitchblende found at Great Bear Lake, 1,200 miles north of Edmonton, which contains one of the largest deposits of radium in the world. Dr. Allan estimated the value of the ore at $8,600 a ton. There is no definite information concerning the size of the field. "Until transportation and concentration costs have been reduced to a sufficiently low figure," Dr. Allan says, "it may be found that the radium cannot be produced at a price to meet that produced in the Belgian Congo."

Debated

¶ PIERRE S. DU PONT '90, recently, against O. G. Christgau, assistant to the general superintendent of the Anti-Saloon League, on prohibition. Mr. du Pont argued for state control and his opponent defended the record under prohibition.

In the News

¶ CHARLES HAYDEN '90, by answering questions asked by the *Business Week* of April 29, 1931, which define a director's job. Mr. Hayden heads the Hayden, Stone and Company, is an officer or director of 72 large corporations, is chairman of 10 boards, and is a member of 31 executive committees and 9 finance committees. The sweep of his influence encompasses railroads, sugar, public utilities, banks, chemicals, mining, shipbuilding, hotels, motors, and insurance.

¶ ALFRED P. SLOAN, JR., '95, by being acclaimed in an article in the *Business Week* as one of the world's most successful leaders.

¶ ALLAN W. ROWE '01, by being characterized in the Boston *Globe* as one of the most unusual and interesting men in the sports world.

¶ NEAL E. TOURTELLOTTE '17, by the formation of the Western Steel Products Company, Inc. According to a report in the *Pacific Builder and Engineer* it is "equipped to manufacture anything of pressed or formed sheet steel or in the steel sash line. It is an outgrowth of the activities of Tourtelotte-Bradley, Inc., which, early in 1930 started the manufacture of special size steel sash in the first plant of its kind in the Pacific Northwest." The new plant is located at 1420 West Galer Street, Seattle.

¶ RADFORD W. RIGSBY '19, by having his picture published in an article on city management which appeared in the February, 1931 *Review of Reviews*. Mr. Rigsby was until recently Manager of Charlotte, N. C.

¶ GEORGE J. SALIBA '27, and EDWARD M. SHIEPE '28, by their invention of a recording machine which was used for the first time in taking the confession of a man under arrest for robbery. The inventors forecast great things for their machine, pointing out that it can be used in letter writing, recording social functions and private gatherings, home concerts, and on various other occasions. The machine records sound and words on a record which may be used on any victrola.

A Note on Barney Capen '91

¶ Attention is called to the news from the Class of '91, nearly 60 items. They have heard from over 125 out of less than 200 listed. Much credit is due Barney Capen, Assistant Secretary, who has for a long time been largely confined indoors because of his physical condition. His chief occupation and pastime is corresponding with his classmates, and for many years he has sent birthday greetings to all of whom he has record.

Deaths

¶ The following deaths have been reported to the Review office during the past year:

E. D. ADAMS '69, May 20, 1931.
E. A. DARLING '72, April 11, 1931.
ALEXANDER LUCHARS '73, Feb. 19, 1931.
R. A. SHAILER '73, July 7, 1930.
W. R. RUSS '74, March 29, 1931.
QUINCY KILBY '75, May 3, 1931.
H. T. BUTTOLPH '76, March 13, 1931.
D. W. PHIPPS '76, April 30, 1931.
W. B. BRADFORD '77, Dec. 1, 1930.
W. H. PLIMPTON '77, Jan. 19, 1930.
H. M. MONTGOMERY '79, Feb. 14, 1931.
H. I. COBB '80, March 27, 1931.
G. R. WALLACE '81, Jan. 28, 1931.
LOTT MANSFIELD '82, April 11, 1930.
J. H. ROSS '82, March 12, 1931.
F. V. STRICKLAND '82, April 13, 1930.
J. H. WALKER '82, Nov. 5, 1930.
G. E. WARREN '82, Sept. 1, 1930.
A. S. JENNEY '83, August, 1930.
E. W. KINGSBURY '83, Jan. 23, 1931.
J. P. RYDER '84, Jan. 10, 1931.
M. M. BLUNT '86, Jan. 31, 1931.
E. G. OSGOOD '86, July 15, 1930.
M. W. COOLEY '87, April 27, 1930.
O. S. HUSSEY '87, Feb. 8, 1931.
J. C. T. BALDWIN '88, Dec. 20, 1930.
G. W. CURRIER '88, June 21, 1930.
J. W. HAWES '88, March 30, 1931.
ALLEN HAZEN '88, July 26, 1930.
H. G. WOODWARD '88, Nov. 18, 1930.
W. H. GAHAGAN '89, Dec. 18, 1930.
F. A. HILLS '89, July 10, 1930.
A. E. NORRIS '89, Jan. 15, 1931.
L. H. OLZENDAM '89, Feb. 1931.
O. F. WADSWORTH '89, May 30, 1930.
JOHN DEARBORN '90, June 6, 1930.
K. C. RICHMOND '90, Dec. 22, 1930.
W. P. BRYANT '91, August 20, 1930.
M. S. SCUDDER '91, April 5, 1931.
J. F. HUNT '92, March 3, 1931.
H. N. WILLIAMS '92, August 23, 1930.
W. B. PAGE '93, March 15, 1931.
A. B. SMITH '93, Feb. 25, 1931.
B. J. CLERGUE '95, March 28, 1930.
J. T. DORRANCE '95, Sept. 21, 1930.
F. A. HANNAH '95, Dec. 5, 1930.
J. H. PARKER '95, May 5, 1930.
W. S. RICHARDSON '95, April 4, 1931.
BENJAMIN HURD '96, August 6, 1930.
T. I. JONES '96, Sept. 12, 1930.
J. W. NAGLE '96, July 31, 1930.
O. C. GRINNELL, JR., '97, Oct. 7, 1930.
J. B. HERBST '97, Oct. 26, 1930.
J. B. HUBBARD '97, May, 1931.
R. E. DALY '98, April 19, 1930.
H. T. SMITH '98, July 17, 1930.
H. K. BABCOCK '99, Oct. 27, 1930.
J. F. CHAPMAN '99, April 16, 1929.
E. G. HENRICH '99, Jan. 27, 1930.
H. H. STARR '99, Feb. 18, 1931.
R. W. BURNETT, JR., '00, Nov. 6, 1929.
G. B. FORD '00, August 13, 1930.
F. E. FOYE '00, March 22, 1931.
A. V. MOLLER '00, Nov. 12, 1930.
J. H. HIRT '01, Sept. 14, 1930.
RALPH PLUMB '01, Jan. 3, 1931.
F. B. WEBSTER '01, Oct. 12, 1930.
RAYNE ADAMS '02, April 6, 1931.
F. W. McINTYRE '02.
R. E. THURSTON '02, Oct. 6, 1930.
R. T. WILDER '03, April 12, 1931.
H. F. NOYES '04, May 8, 1931.
G. H. POWELL '04, May 2, 1930.
R. D. FARRINGTON '05, Nov. 4, 1930.
W. S. RICHMOND '05, April 11, 1931.
R. H. BOOTH '06, March 22, 1931.
F. E. DIXON '06, July 28, 1930.
R. P. STEVENSON '07, Sept. 21, 1930.
J. S. COYE '08, March 20, 1931.
H. S. EAMES '08, Feb. 7, 1931.
A. K. MITCHELL '09, May 5, 1930.
P. F. O'SHEA '09, Nov. 6, 1930.
N. N. PRENTISS '11, August 1, 1930.
A. M. COLEMAN '12, March 12, 1931.
E. H. GAGE '13, July 14, 1930.
G. M. HOHL '15, April 30, 1931.
F. E. HAGGKVIST '16, June 9, 1930.
C. B. BELLIS '18, Sept. 9, 1930.
C. L. Arrigoni, '21, June 1, 1931.
E. F. BRENNAN '22, August 3, 1930.
C. F. SMITH '22, March 11, 1931.
S. N. W. HUFF '23, Dec. 30, 1930.
D. J. McCARTHY '23, July 7, 1930.
R. F. KENEFICK '24, July 30, 1930.
P. C. DAVIDSON '25, Sept. 26, 1930.
D. M. CROSS '26, Jan. 24, 1931.
H. M. DATESMAN '26, Nov. 2, 1930.
H. L. TURNER '28, Sept. 13, 1930.
H. W. GALL '30, Feb. 10, 1931.
G. H. HATHAWAY '30, July 10, 1929.

¶ F. P. FISH, Life Member of the Corporation, Nov. 26, 1930.

¶ T. F. KENNEY, Lecturer in Biology and Public Health at Technology 1924–25, March 15, 1931.

¶ C. W. ANDREWS, former instructor in chemistry at Technology, Nov. 20, 1930.

¶ R. A. HOWES, instructor in economics at Technology 1923–24, Feb. 26, 1931.

¶ WILLIAM BAIRD, Honorary Member of the Alumni Association.

NEWS FROM THE CLASSES AND CLUBS

1873

This Class Association when organized in 1871 had a membership of 60. Today there are 15 members, namely: Charles A. Belden, retired, Ross, Marin County, Calif.; Hiram W. Blaisdell, The Maidstone, 1327 Spruce Street, Philadelphia, Pa.; Philip D. Borden, retired, 559 Rock Street, Fall River, Mass. (P. O. Box 248); William E. Brotherton, 118 Wellington Place, Cincinnati, Ohio; George O. Carpenter, Vice-President of the National Lead Co., 722 Chestnut St., St. Louis, Mo.; Henry P. Cogswell, retired, 64 Washington Square, Salem, Mass.; William F. Dyer, Real Estate, 1022 North 19th St., St. Joseph, Mo.; Arthur W. Forbes, 251 Lowell St., Arlington Heights, Mass.; Frederick Guild, Jr., 133 Bay State Road, Boston; John A. Henderson, retired, 50 North Delancy Place, Atlantic City, N. J.; George H. Kimball, P. O. Box 135, Pontiac, Mich.; William T. Leman, retired, 7224 Cole Avenue, Chicago, Ill.; George M. Tompson, Secretary-Treasurer, 8 Whittemore Terrace, Wakefield, Mass.; Stephen H. Wilder, 1003 Neave Building, Cincinnati, Ohio; Dr. Francis H. Williams, President, 505 Beacon Street, Boston. — GEORGE M. TOMPSON, *Secretary*, 8 Whittemore Terrace, Wakefield, Mass.

1874

The Secretary regrets to announce the sudden death of Willis R. Russ on March 29 at his home in Jamaica Plain. He was for many years a member of the firm of C. Russ and Company of Boston, a concern that was established by his father 75 years ago. Mr. Russ was born in Bridgeport, Conn., in 1854, and came to Boston as a boy. He studied at the Roxbury High School and entered Technology, where he specialized in civil engineering. He was graduated when only 19 years of age.

His survivors include his wife, who was Caroline Hale of Boston; a daughter, Mrs. Arthur Bellamy; and a grandchild, Ernestine Hale Bellamy — all residing at Jamaica Plain. There also is a sister, Mrs. Emma R. Davis of Winthrop, Mass.— CHARLES F. READ, *Secretary*, Old State House, Boston, Mass.

1875

In the last week in April I arrived in Boston and reported to President Hibbard to take the necessary steps toward placing the clock, the gift of the Class, in the Burton Room of the new dormitory. Our four shares of American Tel. and Tel. have been transferred to the Institute and the income from the remaining balance, after the Class is non-existent, is to be given in perpetuity to the Technology Christian Association, so long as it continues in useful operation.

On my return to Chevy Chase in mid-May, I detoured to Holyoke for a few, all too short, hours with Mr. and Mrs. Prentiss. My telling of the reawakening of the Institute under Prexy Compton was much liked.

Dorr, retired, formerly chief engineer of the Sewer Department, City of Boston, is of the old guard, dating back to 1880. Recently he has been engaged on a report concerning work during the years of which he is the sole survivor, knowing the needful details.

Bush, who lives in St. Louis, is an alert '75 man, who promptly replies to letters from the Secretary, much appreciated. His son, William Hector, Jr., who favors his father, is a draftsman in the Treasury Department. Soon after being retired from the office of drainage engineer of the Wabash Railway, on the office being discontinued, he visited Washington, arriving the morning of the monthly luncheon of the Society of the M. I. T. which he and his son attended, to their liking. Although he will be 78 his next anniversary, he is out for another position, and says he isn't happy otherwise.

In the latter part of May Hibbard, Mrs. Hibbard, and the Haywards, their relatives, drove to Lake Winnisquam, N. H., to see how their camp had withstood the winter. Thieves had broken in and helped themselves to bedding, table linen, curtains, victrola, records, and other removables.

As told in the account of the last Annual Dinner in The Review, Homer's informal talk of his hobnobbing with Alexander Graham Bell, back in the sedate seventies, was the feature of the evening. He had asked to be allowed to talk for 15 minutes, and his allotted time was extended to three-quarters of an hour by unanimous acclaim. Homer had been associated with Bell while his experimenting to convey articulate speech over a wire was being evolved and, on this being proved, Bell asked him to help find an appropriate name for the new contraption. After much mulling over in his mind, Homer suggested naming it the telephone. This was eagerly approved and adopted by Bell, which was explained in the class notes.

Now comes the sequel. The Boston *Herald* followed with a story, "The Man Who Named the Telephone," which reached the office of the American Tel. and Tel. Soon the librarian of the company hunted up Homer and he has commissioned him to write his Bell Reminiscences, which he is now engaged in doing, as circumstances permit. It is understood that there are but three men still living who were associated with the inventor of the telephone when it was in the process of incubation.

Quincy Kilby died May 3, 1931, at his home in Brookline, Mass., after a lingering illness, which confined him indoors. He leaves a widow and daughter. He was a special in architecture, which profession he followed for a number of years, then he was in the theatrical business, connected with the Boston Theatre for 22 years. He was First Vice-President of the League of American Wheelmen and member of the Boston Bicycle Club. — HENRY L. J. WARREN, *Secretary*, 4700 Langdrum Lane, Chevy Chase, Md.

1877

One of the outstanding events of the past year was the Class meeting held last June at the Algonquin Club. The following members were present: Charles A. Clarke, Francis H. Bacon, George Bartol, William H. Beeching, William B. Bradford, Henry H. Carter, Edward W. Davis, Joseph P. Gray, Henry D. Hibbard, George W. Kittredge, Benjamin C. Mudge, Arthur L. Plimpton, Colonel George F. Quinby, Frank I. Sherman, and Belvin T. Williston. Arthur W. Dearden called to greet the President and classmates but did not stay to the lunch. Letters were read from quite a number of the classmates who could not be present. Charles A. Clarke was elected President for the coming year and Belvin T. Williston Secretary-Treasurer. Williston was also elected to represent the Class of '77 at the Alumni Council Meetings.

It is with regret that the Secretary recorded the deaths of our classmates, William B. Bradford, Franklin Price Knott, Walter H. Plimpton, and Wilfred Barnes during the past year. — BELVIN T. WILLISTON, *Secretary*, 3 Monmouth Street, Somerville, Mass.

1882

John H. Ross, son of Matthias Denman Ross, so memorably connected with the founding of Technology, died suddenly on March 12, at the age of 70. At the time, our friend and classmate was in Bermuda with some members of his family and appeared to be in the best of health.

He entered Technology with the Class of 1880, and was for two years in the course of Science and Literature. Responding to a wish of his father, he went into business for a year, returning to Technology for three more years, specializing in chemistry and graduating in 1882. He then associated himself with the Boston Thread and Twine Company where he successively held the positions of Superintendent and President. In 1906 when that Company merged with the Linen Thread Company, Ltd., a British corporation owning a number of mills in this country, he continued with this larger organization. He became General

1882 Continued

Manager and was a director on both the foreign and domestic boards. This position necessitated yearly visits to the European business centers and flax markets, all of which he greatly enjoyed. He was a director of the Mercantile Wharf Corporation and a member of the Union Club of Boston.

In 1920 he retired from active business, spending the greater part of the year in Hingham, Mass. For several years he was a Trustee of Derby Academy, in the affairs of which he was actively engaged. Our classmate was unusually happy in his home life, enjoying his large collection of books on many subjects, his garden and outdoor life. His wife and three married children survive him. A letter from his brother Henry F. Ross expresses what those who knew him best felt: "I have known only very few people in my life where the inner light of the soul shone through bright and clear for all those who could see and recognize it."

The members of his class who with his many friends attended the funeral service at Mount Auburn Chapel heard a beautiful and fitting tribute to our friend, John H. Ross. Rev. Charles E. Park, D.D., said: "He was a successful man as the world counts success. But he was more than just successful. He was instinctively and incurably generous as well, and therefore his success was a common blessing. We think of him with a great sense of loss, but that is not enough. We think of him with elation of spirit. It is a good world that can produce such men and it is a better world because it has produced such a man."

This account of our classmate, John Ross, was written by a member of his family, to whom we are much indebted. — ALFRED L. DARROW, *Secretary*, Room 93, 8 Beacon St., Boston, Mass. RACHEL P. SNOW, *Assistant Secretary*, Falmouth, Mass.

1883

George H. Bryant says that he and Mrs. Bryant spent two months last winter in Florida where they met Harvey Chase in St. Petersburg, in which place he spent the winter. He writes that he has quite recovered from his illness of three years ago, and spends much of his time bowling on the green at the Lawn Bowling Club, which has more members than any similar one in the country. The Chases will be at their summer home in camp, near Bolton and Harvard, Mass., after June 1. Their son, Stuart Chase '10, has been in Mexico writing a book on the social and industrial conditions of that country, which will be published some time this summer.

Eppendorff writes from Buffalo that the past year has been a fairly quiet one. He knows nothing of special interest. He has been emulating the Kaiser Bill by splitting up a 130-ring oak tree which he had to cut down in his yard. This is his Saturday and Sunday amusement; he has also been devoting himself to carpentering in his spare time. He hopes, when he gets older, to get around to more of the class meetings. The Class heartily approves this decision to attend more meetings.

Horace Gale has been too busy trying to do away with the unsightly advertising signs along the Massachusetts highways to send in any news until now. He says that he has been putting in a great deal of time as Chairman of the Committee, financing the defense of the Massachusetts Anti-Billboard Law against the assaults of bill-posting interests and most of the rest of the time writing building regulations for his native town and engineering them through the old-fashioned town meeting. After two years' trying, he has got through a good set of building laws, adopted this year, and he has finished the job this year by adding zoning regulations.

H. W. Kingbury, 510 Brooks Building, Scranton, Pa., wrote last December inviting the Secretary to bring his golf clubs to Scranton. He expected to be away from there all last winter, but home again in the spring. — Harvey Mansfield is still living in Tampa, Fla., where he is looking up the possibilities of the dry ice business. — George A. Smith, although he doesn't say so, has been too busy of late to answer my appeal for news for the class notes.

George Underwood is still living in Peabody, Mass., and suggests a class reunion at the Salem Country Club, which is near his home. — Wesson is still experimenting with cottonseed, and as a result of experiments on his friends, hopes, one of these days, to be able to turn out a synthetic meat which will be a feature of farm relief to the cotton planters of the south. — Quite a number of the Associate Members of the Class have been heard from. Winthrop Alexander, writing from Washington, says he has been assistant engineer on the valuation of railway buildings, in the employ of the Conference Committee of Railway Presidents, Eastern Group, but, owing to a change of policy, is now a gentleman of leisure, and is amusing himself teaching French and a few other side lines which helps to obviate the necessity of selling apples on the street. — Boyden has not been heard from since November 17 last, when he wrote from Annapolis, Md.

Mark Lawton writes that he spent the winter traveling abroad, and expects to go across the Atlantic again some time in August, as early as he can get away. He and Mrs. Lawton have not been very well during the past year. — W. C. Merryman writes that the only breaks he has had in his regular job have been a couple of trips to Maine. He expects to start for there the last of this month. — F. B. Richards, who retired from M. A. Hanna & Company about three years ago, has been living in Cambridge, Mass., more or less as a gentleman of leisure. — Edward F. Stevens is still putting up fine hospital buildings. — Julien W. Vose writes that he spends most of his spare time with his best chum, who is his grandson, 19 years old. He has recently been visiting Jamaica and the Canal Zone.

The following associates have not been heard from: Henry A. Francis, Dr. Robert W. Hardon, Miss Clara M. Pike, E. L. Tuttle, and George H. Capen. — The Secretary is sorry to note the death of Edmund Winchester Kingsbury. Full mention was made of this in The Review for May. — From the correspondence received, it looks as if the Class would get together for some sort of a reunion in the month of June, which will be fully reported on later. — DAVID WESSON, *Secretary*, 111 South Mountain Avenue, Montclair, N. J.

1884

The outstanding event in class affairs was the resignation of Tyler, whose name had been on the books of the Institute for 50 years, as student, instructor-on-leave, and professor; it is still there as professor emeritus. He taught 44 years, being exceeded by Dewey, Miller, and Robbins with 45, Merrill and Richards with 46, Cross and Lambirth with 47 (the longest service of anyone) and equalled by the writer. He is Secretary of the Association of University Professors with an office in Washington, and also a consulting librarian in the Library of Congress.

No one of the professors will be missed more, as he served on many committees of the Faculty and Alumni, and was president of the Faculty Club for 10 years. For those of us who knew him well, Technology seems hardly the same without him.

Lull underwent a serious operation at a Boston hospital last July. The class will be glad to know that he has made a good recovery. — The members have doubtless seen the notice of du Pont's death in this magazine as well as in the public press: a memorial of him will appear in a later issue in addition to the obituary which appeared in the February, 1931, issue of The Review.

The Secretary recently met a student who knew Ryder, whom it will be remembered passed on in January. He stated that he had had heart trouble for several years, and that his trip around the world was of no benefit to his health. He said further that he was much beloved by the students and that he had done a great deal to advance the Drexel Institute.

Chase is seeking a round of golf with some of his classmates. — Gill has been elected to Tau Beta Pi which, in scientific schools, is the equivalent of Phi Beta Kappa. — AUGUSTUS H. GILL, *Secretary*, Room 4-053, M. I. T., Cambridge, Mass.

1885

The Secretary has long felt that the Class of '86 might still be plucked as a brand from the burning, if each '85 man would select some individual member of the younger organization and devote himself to uplift work for a long enough period. So, in order to set the example, he has seen it his duty to choose a worth while problem in the salvaging of a prominent member of said class while yet the lamp holds out to burn. Accordingly he has left his former residence at 10 Kenmore Street, Boston, and is now domiciled at Twin Ash Farm, Medfield, Mass., of which manor Mr. Charles C. Peirce '86 is lord. The prayers of the con-

1885 Continued

gregation are requested. The telephone address of this happy family is Medfield 323. Please send cash or checks marked "personal!"

Charlie Brown has concluded to play invalid and intends to take a good rest until he is fully recovered. He walks and rides and keeps pestering the Secretary on the telephone until the latter wishes that he would hurry up and get well so that he could come into town and say it, personal. Send your old paper dolls to him at 40 Chestnut Street, Salem, Mass. — Old Hank Martin has retired from business and is living at 79 Lincoln Street, Montclair, N. J.

Everett Morss has spent the winter in circumnavigating the globe in an attempt to find a better place to celebrate our Fiftieth Anniversary. As far as that is concerned he might just as well have stayed at home, but anyhow he must have got quite a kick out of it. Judging from his frequent postal cards he spent most of his shore leave in monasteries, mosques, and cathedrals, but some say not. He'll tell us all about it at the Class Dinner.

Charles Richards is fast shaping into life the graphic summary of the scientific and industrial progress of the last century and a half, known as the Museum of Science and Industry, to which he is now devoting all his energies.

The following excerpt from a page article on the Museum in the New York *Times* will give some indication of Charlie's conception of this interesting and unusual enterprise. "Since 1780 the progress of invention has added the mechanical equivalent of 3,000,000 slaves to the working power of the United States — about one and one-half times the present population of the globe. This is the story that will be told in outline at a special exhibition opening on September 12 at the new headquarters of the Museums of the Peaceful Arts at 220 East 42nd Street. Later the museums, which are soon to change their name to the Museum of Science and Industry, will complete installation of a permanent collection to set forth in models, relics, and pictures the long narrative of man's progress from savagery to civilization. In time, perhaps, the enlarged museum may rival in importance the Metropolitan Museum of Art and the Museum of Natural History and hold its own with such famous foreign institutions as the Deutsches Museum of Munich, the Science Museum of London, and the Technical Museums of Vienna."

It is a very pleasant circumstance that Charlie Peirce's Twin Ash Farm is in full view of Henry Sweet's "Kochachee," which is only half a mile away. Henry has added another nine holes to his private golf course, where the Class have twice been guests, making a full eighteen hole course. — ISAAC W. LITCHFIELD, *Secretary*, Twin Ash Farm, Medfield, Mass.

1886

The recommendations of the Commission appointed by the Governor to revise the tax laws of Vermont, of which commission Batcheller was the chairman, have recently been adopted by the legislature of that state.

Ricker, who was for a number of years the Washington, D. C., representative of the Portland Cement Association, has been retained as Industrial Consultant to aid the Capital Park and Planning Commission in solving satisfactorily the many problems arising in the industrial developments in Washington and the suburban regions.

Ingalls, who is a director of the American Bureau of Metal Statistics, recently delivered a lecture on "The Wealth of Nations" before the Franklin Institute of Philadelphia. — The name of A. A. Noyes is one of the 28 names of foremost American scientists inscribed on the stone tablets above the entrance to the new Hall of Science at the Pennsylvania College for Women in Pittsburgh. — ARTHUR G. ROBBINS, Room 1-270 M. I. T., Cambridge, Mass.

1888

Edwin S. Webster's exhibit of orchids was awarded the Gold Medal at the Spring Flower Show of the Massachusetts Horticultural Society. In addition, he displayed a garden which was one of the attractions of the Show. It was awarded a $1,000 prize.

Benjamin G. Buttolph, Vice-President of the Manufacturers' Mutual Insurance Company, representing the Factory Mutual Fire Insurance Companies, made a speech at the dinner given by the Providence Engineering Society as a testimonial to John R. Freeman '76 on April 21. Ben was preceded by the President of Fordham College and followed by the President of Brown University. His speech was a credit to himself and the Class of '88. — Walter C. Gage now resides at 179 North Pleasant Street, Holyoke, Mass. He has been connected with the Worthington Pump and Machinery Corporation and its predecessors for 44 years.

Mrs. William G. Snow, wife of our late lamented Secretary, has returned to her Newton Centre (Mass.) residence after spending the winter with her daughters in New York and Florida. — The Boston *Transcript* of March 31 contained the following clipping in regard to John W. Hawes, who was a member of the Class of '88 from '84 to '86 in Course VI. "John W. Hawes, who had long been retired from active life, died last night at 10 Eliot Road, Lexington, where he had been stopping for several weeks. Mr. Hawes was a native of Boston, the son of Russell L. Hawes and Susie (Fuller) Hawes. He studied for two years at M. I. T., and then went abroad where he continued his studies. Mr. Hawes was a member of the Boston Athletic Association, and at one time belonged to the Algonquin Club. His Boston home was at 11 Follen Street. He was unmarried."

Frank O. Stetson has recently joined the forces of the Werby Laboratories, Inc., analytical and consulting chemists, 88 Broad Street, Boston. A. Benjamin Werby, director, is a graduate of the Class of '11. Stetson pays a genuine tribute to the memory of our dear departed Jimmie Baldwin when he says: "I was grieved to learn of Baldwin's death. J. C. T. always, I thought, exemplified the Claude Fitch definition of a gentleman as 'A man who would take a lot of trouble himself to avoid giving a little trouble to someone else.'"

Our last letter from our "Class Champion Tourist," Fred Nichols, came from Galveston, Texas, and was dated April 13, although your Secretary has been expecting daily an epistle from San Diego, Calif. For the benefit of those who did not read the '88 notes in the April Review, we would say that Fred has a year off from teaching in Chicago and is tracing a line around the outside of the U. S. A. with Mrs. Nichols in his trusty "Willys-Knight." A synopsis of the story to date. "Left the Windy City, December 30, 1930. Passed through Indianapolis, Louisville, Chattanooga, Jacksonville, Tampa, three weeks at Fort Myers, Fla., then on to Miami, back up to Tallahassee, Pensacola, Mobile, New Orleans and Galveston. From there he will go to El Paso, San Diego, Los Angeles, San Francisco, Portland, Seattle, Vancouver, Denver, Winnipeg, through Canada to Nova Scotia, Boston, New York, Washington, arriving back in Chicago on January 1, 1932. Thirty thousand miles and what a trip! As Fred's last letter contains only 4,096 words by actual count, and as your Secretary is limited to 833 words for this issue by vote of the Executive Committee, you can readily see why Fred's letter had to be omitted.

Your Secretary requests that every '88 man write him at once in regard to where and how we shall celebrate our Forty-Fifth Anniversary-Reunion, in June 1933. Affairs of this magnitude should be started at least two years in advance. — BERTRAND R. T. COLLINS, *Secretary*, 18 Athelstane Road, Newton Centre, Mass.

1889

The activities of '89 as a class during the past year have been confined mostly to the praiseworthy object of dining well at least twice in 12 months. The dinners at the Union Club on June 6, 1930, and March 10, 1931, were notable occasions and it is a source of great satisfaction to the Administration that in spite of losses by death and infirmities due to maturity the attendance has kept up to par while the index curve of high spirits has grown so steep that it is practically vertical. "Age cannot wither," and so on.

It would be very much easier for the Secretary to write a readable column if members of the Class would send him items of interest whenever they occur. As it is, he is obliged to depend on haphazard sources for his information and miss many occasions of importance.

Orrok has moved his offices to 21 East 40th Street, New York. — As this was the only item of news which came to hand this month, the Secretary is moved to write about himself. On May 6 he had the honor of addressing the Faculty Club on the subject of "Modern Architecture"

1889 Continued

(illustrated), the first chance he has had in 42 years to have the Faculty sit still while he did the talking. Only a few slipped out in the dark, less than the usual number, he was told, but he certainly would like to hold an examination on what he said! — WALTER H. KILHAM, *Secretary*, 9 Park Street, Boston, Mass.

1890

Most of you missed our Fortieth Anniversary Gathering last June. However, those present had a good time. We all spent the day at the Belmont Spring Country Club. Thirty-two of the Class were present, and many with their better halves. Our Class President, Charlie Hayden, presided at the dinner, and the day was spent in golf by a few, and delightful chats by all, reminiscing over the past and inquiring for those of you not present. Now just jot down that in 1935, at our Forty-Fifth Reunion, you will plan to be present.

Your Secretary and Mrs. Gilmore have recently returned from the South, where your Secretary made more or less efforts trying to hit a golf ball. They were at Augusta, Ga., and later their car joined them and they motored home, visiting the many historical places in the Carolinas and Virginias. At Charleston, S. C., your Secretary dropped in on Cyrus C. Babb. Cyrus is with the U. S. Flood Control as Consulting and Supervising Hydraulic Engineer. They are working on the Santee and Predee Rivers, covering a territory of flood area as large as Connecticut and Rhode Island.

One of the most interesting visits they made was to the gardens of our classmate, Pierre S. du Pont, about 12 miles from Wilmington, Del. — We note that Charlie Hayden was one of the speakers in March at the annual dinner of the Boston Stock Exchange. The latest report is that Charlie is a director in only 94 corporations. Not much time left for golf if he keeps up attendance. The latest we have heard is that he is a director of the National Recreation Association, so that may be a help to him. Charlie has recently contributed $50,000 to the Judge Baker Foundation.

The home of Guy C. Emerson, one afternoon recently, had a visit from a burglar, but fortunately someone saw him go in and the police were notified and were quickly on the job. — From what recently appeared in the press, Mayor Curley of Boston does not entirely agree with Billy Ripley, Professor of Economics at Harvard, as to what is best for the port of Boston, and is inclined to picture Billy as a New Yorker. — At the Forty-Fifth Reunion of the Class of '86, English High School of Boston, Harry M. Goodwin was elected President.

At the Technology Club of New York in April, some kind of a shindig was held as a Mechanical Engineering two-act drama of the Seminarian School. Your Secretary was not present, but Cal Rice headed a notable galaxy of luminaries as Chairman and Alumni Spokesman. — At the Alumni Dinner at the Statler Hotel in Boston, we were represented by Batchelder, Burley, DeWolf, Rogers, Spaulding, Goodwin, and Gilmore, with the important parts of their family.

At the banquet given to Professor Einstein at the California Institute of Technology early this year, Dr. Michelson, at the conclusion of his speech on what had been accomplished by the Mt. Wilson Observatory, and the Huntington Library, gave particular praise to the work done by our classmate, Dr. George E. Hale, whose influence had brought about the realization of this dream. — John H. Towne, treasurer of Yale and Towne Lock Company, is at 405 Lexington Avenue, N. Y. We have not seen Jack for several years, but your Secretary wonders if he is still as interested as ever in his stamp collecting hobby, for your Secretary has the same disease.

Ernest H. Brownell, retired Naval Commander, is on a trip to Egypt and Greece, to be gone until the latter part of June. — Dr. Willis R. Whitney, head of the Research Laboratory of the General Electric Company at Schenectady, N. Y., was presented in May with the Franklin Medal by the American Association for the Advancement of Science. — Batchelder is still interested in athletics, and is on the Technology Rowing Committee. — Harry M. Goodwin is Dean of Graduate Students at M. I. T. You may recall him as a Captain in our freshman military days.

On Sunday afternoon, May 10, your Secretary had a most delightful shock. Two cars, with four ladies and two gentlemen, drove up to his home in Lexington and one of the gentlemen stepped out and came to the front door. Your Secretary, seeing him there, opened it to him, to be asked if he were George Gilmore, and announced that he was Charles R. Nason, '90, and in a moment old acquaintances were renewed.

Charlie was only with us our freshman year, so we had not met for nearly 50 years, but both felt as young as in those days by the time we were seated. Now fellows, here is the point. Charlie is among the few of you (I regret to state there are only a few of you) who always replies to any letters from your Secretary and lets us know where he is and what he is doing. Charlie, although only with us one year, is among those who pays his Alumni dues and so receives The Review regularly and thus keeps in touch with Technology and his old classmates of 50 years ago. Why don't more of you do likewise? — GEORGE L. GILMORE, *Secretary*, 57 Hancock Street, Lexington, Mass.

1891

We have heard from over 125 men out of less than 200 listed.

The Fortieth Reunion will be held at East Bay Lodge, Osterville, Mass., on June 12, 13, and 14, and it is expected that about 50 will attend. The Class held its regular winter dinner at the Algonquin Club, February 2, with 26 members present. President Karl T. Compton was the guest of honor.

Charlie Aiken has been in Australia for a year, building and equipping a soap factory for American interests. — Arthur Alley was in Boston for some time this winter and came to our dinner. He is still enthusiastic over life on the farm in Southern California, where he has been for a number of years. — Andrews, who was formerly at Chauncey Hall School, Boston, writes that the day he was 21 he voted for the first time for Ben Harrison. Perhaps that is a Class record. — George Atkinson is now in business in Boston with George T. Tracy Company and living at 36 Tudor Street, Chelsea, Mass.

Robert Ball writes from Cambridge, England, of a recent trip to Germany. He gives some delightful reminiscences of his undergraduate days at Technology, of General Walker, Professor Cross, Lanza, and others. He lectured at the Institute a year or so ago. — Will Bassett has had a most interesting year traveling about the country as President of the American Society of Mining and Metallurgy. — Eli Bird has made his reputation as a Book Plate Designer. As usual, we call on Eli for cuts for our Reunion posters and program.

Henry Birks reports from Montreal "All's well," and says he has had visits from several '91 men during the past winter. Don't fail to see his jewelry store, the finest in Canada. — Blair, Dana, and Fiske attended the Annual Convention of the National Fire Protection Association in Toronto in May. Gorham and Mrs. Dana motored from Boston to Toronto and back and had a delightful trip. — Steve Bowen is still globe trotting, the last time to the Coast and Panama Canal. — Jerry Campbell was in Mexico City this winter and is enthusiastic over the climate. — Barney Capen recently received a very handsome certificate of Life Membership in the Telephone Pioneers of America.

Annie (White) Carpenter writes from Venice that she has been tramping in England and Italy with young people of her family (her doctor husband is dead) and renewing her youth. She isn't sure how it would be to go to a '91 reunion and see a lot of old grey-headed men. It probably would be somewhat of a shock. — George Chickering sends in his regrets for the Reunion but sends greetings and best wishes. We have not heard from him for a long time. — Francis Choate writes from Omaha that he lost his wife in 1928 and since then has been a wanderer but with lots of work. — Albert Clough is President of Manchester (N. H.) Institute of Arts and Sciences. — John Cole writes that he has been out of touch with the Class as he only went to Technology for a year.

Edward Earle writes from Leominster of the liquidation of the Howe Comb Company that he has been with so many years. — Freedlander is one of the best known architects in New York City: the New City Museum, French Institute, Harlem Hospital, and so on. — Charlie Garrison is still on the Pacific Coast. He is taking an auto trip to Oregon, Washington, and British Columbia, about 3,000 miles all told.

1891 Continued

Albert Gottlieb writes from New York that his business (architect) has been hard hit by the depression, but that he hopes to come to the Reunion just the same. — Annie Gove writes from Greensboro, N. C., where for many years she has been teaching and working in the North Carolina College for Women, Department of Health. — A. J. Hammond is a member of the Board of Managers of the Rose Polytechnic Institute of Chicago. — Charles H. Hannington has retired from the Motor Company in which he has been interested for many years, is devoting his time to various civic affairs in Denver, and doing some traveling. He is President of the Colorado Museum of Natural History.

Herbert Hathaway has left the Solvay Process Company in Detroit, where he has been a chemist for so long, and is wondering what to do next. — Professor and Mrs. Hersam of Berkeley, Calif., are on their way east and expect to be at Stoneham, Mass., for a few weeks with a nephew. Charlie Garrison saw him recently in Berkeley and tells of Hersam's "Eagles Nest" high above the University of California Stadium, with a wonderful view to the west, over bay and mountains. — Holliday expects to visit his brother at Provincetown, Mass., this summer and will try and see us at East Bay Lodge. — Francis Holmes is still making rope down in Plymouth.

George Hooper has written frequently during the year from Pasadena. He tried to have a '91 reunion but all he could collect were Garrison and Bowen. He was hoping for Shattuck, Alley, and Aiken (on his way back from Australia). Mrs. Hooper had a flower centerpiece of '91 class colors. Any '91 man can be sure of a royal welcome in Pasadena. — Frank Howard is now President of the Bemis Associates, Inc., Watertown, Mass. He still lives in Winchester and has the most grandchildren(?).

Arthur Howland retired from Wadsworth Howland and is in the banking business. He and Mrs. Howland made a trip around the world last winter on the *Resolute*. — Kauffman writes from Denver that he saw a number of Technology men on the Pacific Coast this last winter. — Bert Kimball is still living in Waban and has a summer place at Juniper Point, Boothbay Harbor, Maine, right across from George Holmes' log cabin. — Morris Knowles has been asked by President Hoover to serve as Chairman of his Committee on Utility Developments.

Professor Lawrence of Technology was unable to attend the Class Dinner this winter but expects to be at the Reunion. — Will Leland writes from Berkeley, Calif., that he is very busy with his engineering. He is doing the heating, lighting, and so on, for the new Labor and Commerce Buildings in Washington, D. C. Also, the new Federal Building in San Francisco and the War Memorial, consisting of an Opera House and a Veterans' Building. — Margaret Maltby is in China, according to a letter received from her nephew. — Marquand came to our dinner. He is now in Newburyport raising poultry. — Letter from Mitchell in New York says he feels like an outsider, but mentions friends made at Technology and wants to be remembered to all.

Alex Mosley and Barney are "cousins," both being descendants of Barnard Capen (and Joan Purchase) who came into Dorchester Bay on the *Mary and John* in 1630. — William Roberts writes from Tacoma where he is a consulting engineer. Forty years out must be the age for reminiscences. Roberts calls to mind General Walker's closing remarks to our Class, "Fill your minds so full of wheat that there will be no room for chaff." — Fred Rose retired from business in 1926. He has been in Florida this winter and complains of the bad weather.

Morrill Ryder has not been in good health but is better now. He and his son Edwin called on Barney recently. — Several letters from Shattuck tell of life on (or in) the desert at Indio, Calif. He tells of a visit from Charlie Garrison and says he missed the '91 reunion at George Hooper's in Pasadena because he had the flu. — Warner Steel writes from Philadelphia of a recent trip to Charleston, S. C. — Jimmy Swan has left Newport, R. I., and is now in New York with the New York Shipbuilding Company. In April his son was struck by an automobile and killed.

Giff Thompson has traveled extensively "all over everywhere" and gives illustrated lectures such as "Famous Rivers of the World." — William H. Tucker writes from Jacksonville, Fla., where he has been since 1902. He is doing engineering work for the Mexican Petroleum Corporation and does most of the fuel oil engineering in that section. — Cliff Tyler sends a very interesting letter of his trip to Europe last summer with his wife. They went direct to Naples on the Italian steamer and traveled through Italy, Switzerland, France, and England. — George and Mrs. Vaillant took a yachting trip this winter to the West Indies, Panama Canal, and so on. He has a cottage at Washington, Conn., and Steve Bowen recently spent a week there with him.

Viele writes from San Diego, Calif., that he and his wife are both well and sends his regards to "the boys." — Ambrose Walker spent the winter in the South but is now back on the job. — Gardner Wells is now President of Boston, Revere Beach, and Lynn Railway and Attleboro Interstate Railway. — Will and Mrs. Wilder and Morris and Mrs. Knowles were the guests of Charles and Mrs. Ricker in Havana this spring. Another '91 reunion. — Charles Wilson writes that he retired from the shoe manufacturing business in Lynn in 1923 and since then has been taking it easy, reading, book collecting, golf, and is now in the "carpet slipper" age.

Harry Young wants to know whether he is really entitled to the silver bowl for the class baby which was given him at the time and properly inscribed. It is in the possession of his daughter, Mrs. Holden of New York (the Class baby, born April 12, 1893), and his three grandchildren were christened out of it. Harry's son Richmond was killed in the World War. — Marshall Scudder passed on after a short illness at Redlands, Calif., on April 5. — William P. Bryant also died during the past year. — HENRY A. FISKE, *Secretary*, Grinnell Company, 260 West Exchange Street, Providence, R. I. BARNARD CAPEN, *Assistant Secretary*, The Early Convalescent Home, Cohasset, Mass.

1892

Sweetser sent me some time ago an announcement of a consulting service in Blast Furnace Practice, and his 38 years of practical experience in blast furnace operation should well equip him to solve problems as consulting engineer. — Edward Hall has been elected chairman of the Water Board of Watertown, Mass. The clipping that was sent me giving this news also tells of the activities of the Board. Hall should be a valuable member of it.

I am sorry to announce the death of John F. Hunt, who died in Quincy, Mass., on March 3. His obituary shows that he was engaged in the insurance business in Quincy and was interested in the affairs of the Quincy banks also.

On May 16 I saw by the papers that Dwight Robinson has been elected President of the Associated Harvard Clubs at their meeting in St. Louis. Congratulations. — By the time this comes under your eyes the dinner and meeting for which I am sending out a call will have been held and passed into history. I expect that we may talk a little about where to go and what to do for our Fortieth Reunion, which comes next year. If you have any ideas, spring 'um. — JOHN W. HALL, *Secretary*, 8 Hillside Street, Roxbury Crossing, Mass.

1893

Only two more years before our Fortieth Reunion! You should now set aside time (and money) enough to travel to Boston, arriving about the first week in June, 1933. (Long before time for you to start you will know the exact dates of the Reunion, no matter how far away you live.) We are expecting to see Rigby Wason, who will come from England, Maki from Japan, and others from abroad.

Two class meetings were held in 1930. The Spring Meeting, at Farwell Bemis' invitation, was held at his home in Chestnut Hill on April 11. — Jack Ashton came over from New York, Walter Norris from Portland, Maine, Fred Dillon from Fitchburg, and 30 from Boston and vicinity. — The Annual Reunion was held on June 6 at Marblehead Neck. The Henry Morsses invited the Class to tea at their home overlooking the harbor, preceding the dinner at the Eastern Yacht Club. Twenty-two ladies and 27 men were present, three members of the Class from New York, one from Delaware, one from Connecticut, two from Maine, the others from Massachusetts.

In New York, January 1930, was held the first of a series of class luncheons, organized by James A. Emery. While

1893 Continued

primarily for New York members, out-of-town classmates are cordially urged to attend. Beginning on the last Friday in November, except during the summer months, these meetings are held bi-monthly at one o'clock in a private room at the Railroad Club.

Although it is more usual nowadays to hear of the marriages of children of members rather than of members of the Class themselves, there have been two marriages since 1929 — that of Francis Wright Fabyan on February 26, 1930, and of Charles Milton Spofford on May 19, 1931. The marriage of Francis Wright Fabyan and Miss Annabel Park, daughter of Mrs. John Francis Park, 31 Gloucester Street, Boston, was a noon wedding at the home of the bride, at which Rev. Russell Henry Stafford, minister of the old South Church, officiated. J. Philip Park of New York gave his sister in marriage and Mrs. Harold D. Billings of Newton, a cousin of the bride, was matron of honor. Mr. Fabyan was attended by his son Francis W. Fabyan, Jr., as best man. Since 1893, Fabyan has been associated with the long established firm of Bliss, Fabyan and Company of Boston. For several years, he served as President of the Algonquin Club and he is a member, also, of the Union Club, the Eastern Yacht and the New York Yacht Clubs. A leader in class affairs from our undergraduate days, he will be remembered as the hospitable president at the time of our Thirtieth Reunion. He is giving devoted service to the Institute as a Life Member of the Corporation.

Charles M. Spofford's marriage to Miss Mary Washburn Pearson of Bay State Road, Boston, was celebrated quietly on May 19, 1931, and was announced by Mr. and Mrs. Frank Ames Niles of Fifth Avenue, New York City, Mrs. Niles being a sister of the bride. The Spoffords will reside at 61 Colbourne Crescent, Brookline. Since 1914, he has been a partner with Frederic H. Fay in the consulting engineering firm of Fay, Spofford and Thorndike, whose offices are at 44 School Street, Boston. In 1930 he received from the American Society of Civil Engineers the Phebe Hobson Fowler Engineering Architectural Award for Meritorious Achievement for the design of the Lake Champlain Bridge, on which his firm served as engineers.

A signal honor has been bestowed upon Farwell Bemis in changing the name of the '93 Dormitory to Bemis. This is as it should be, as Bemis was not only among the first to recognize the need of dormitory buildings at the Institute but it was he who contributed a very large percentage of the cost of this first unit of the contributed dormitory group which was presented as a gift to the Institute from the Class at the time of its Thirtieth Reunion.

Charles E. Buchholz writes cheerily from Saranac Lake where he has spent nearly three years, and states that he is again taking active part in the affairs of the coal companies in which he is interested, but that he will stay at Saranac for another year. — Fred Keyes has come over from New York and is now associated with Bemis Industries, Inc., at 40 Central Street, Boston, and is living in Newtonville.

A reproduction of a remarkable painting of the wizard Steinmetz is one of Mott-Smith's notable contributions to this year's General Electric Calendar. The query naturally arises whether Billy Forbes, our Class President, is responsible for the lithography; if so, he is too modest to acknowledge the fact by his imprint.

About a year ago, Arthur A. Shurtleff and his family legally changed their name to Shurcliff. He is one of the best known landscape architects in the country.

Rigby Wason and his wife have cordially welcomed those classmates who have called upon them in London. Mr. and Mrs. Morss in November, and your Secretary in June, had the pleasure of seeing them last year. Mrs. Wason is enthusiastically anticipating meeting her husband's classmates at the Reunion in 1933 — the Fortieth.

The following deaths have occurred within the past year and a half: John Cotton Clapp, a Boston architect who worked with John Sargent on the Boston Public Library murals; William E. Evans, who gave up engineering in 1912 and took up farming and orchard work in Framingham, Mass.; Warren Dudley King, manager of the Peabody (Mass.) Electric Light Department for many years; Joseph C. Noblit, President for 15 years of the Philadelphia Fire Retardent Company; William B. Page, for years connected with the George W. Wheelwright Paper Company of Fitchburg in various capacities from clerk to agent and treasurer; A. Blakely Smith, for many years retired from the wool business; and Charles A. Tripp, engineer and factory architect, who made a notable success in the development of flashless powder and was Secretary-Treasurer of the U. S. Flashless Powder Company at the time of his death.

Out of a class list of 423 names, there are 279 on our mailing list, ten of whom are in foreign countries; 96 are deceased; and 48 for whom addresses are unknown. — FREDERIC H. FAY, *Secretary*, 44 School Street, Boston, Mass. GEORGE B. GLIDDEN, *Assistant Secretary*, P. O. Box 1604, Boston, Mass.

1894

During the past year, Gardner has had general direction of the Department of Architecture during the absence of Professor Emerson. Phelan has been an active member of the important Committee on Scholarships, as well as responsible for a large share of the instruction in first year chemistry. Haven has been engaged in the research program in textile engineering, which has been so splendidly advanced through Dr. Stratton's activity and interest. Owen has continued his excellent work in Naval Architecture, and Prescott has completed his two-year term as Chairman of the Faculty, in addition to carrying on his work as head of the Department of Biology and Public Health, and his service on committees of Faculty and Alumni. All the above-named are full professors in their respective fields.

It is almost an annual certainty that Abbot has done some splendid piece of research in Astrophysics or has made some other contribution to science in his high post as Secretary of the Smithsonian Institution. Fred Fowle also, as one directly in charge of some of the work at the Astrophysical Laboratory in Washington, is sure to make a large yearly addition to his scientific papers and his reputation. — Mrs. DeLancey (Miss Gallup, as we knew her) has sent most interesting accounts of her travels, and is a discriminating observer. The Secretary suggests that if she should write a book, every '94 member would want it. Of the recent news of class interest, first mention should be given to the marriage of Lewis Greenleaf to Mrs. James MacNaughton Thompson of Albany, which took place in Albany at the end of February. Mr. and Mrs. Greenleaf will reside at Loudonville where he has made his home for several years. Greenleaf is secretary of the Behr-Manning Corporation of Troy, one of the large manufacturers of abrasives. Greenleaf's first wife died more than a year ago. He has two sons, Lewis S., Jr., and Richard C., and a daughter, Mrs. Francis P. Nash, Jr., of Groton, Mass. The congratulations and best wishes of the class are cordially extended to Mr. and Mrs. Greenleaf.

Another wedding of '94 interest has recently occurred in St. Louis. An invitation was recently received from Mr. and Mrs. E. C. Klipstein to attend the wedding of their charming daughter. Again congratulations and best wishes from the Class.

R. S. Weston has been busily engaged as an expert in the important litigation that has been conducted between New Jersey and neighboring states in regard to the division of waters from certain rivers for water supply purposes. This case is, in certain aspects, similar to that between Massachusetts and Connecticut in connection with the Metropolitan water supply which has recently been settled by the Supreme Court. Weston was also an expert in this case.

Walter Piper sailed for England early in May on a business trip, to which is added the pleasure of a visit to his daughter who married an English business man and makes her home there. Piper is Treasurer and General Manager of the Tyer Rubber Company of Andover, and also a director of other industries, as well as his farm in Sudbury.

Frank Lovejoy, after several months of enforced inactivity, is again at his desk as Vice-President and General Manager of the Eastman Kodak Company. The Secretary recently enjoyed a call from Frank when he came to Boston on business and to visit his son, George (M. I. T. '34). Frank expects to visit European factories and agencies of the Eastman Kodak Company later in the summer and the Secretary hopes to meet him in London in August. — Gardner is preparing the designs for the tablets to be placed in

1894 Continued

the new dormitory to do honor to the Alumni for their contributions and to the men for whom the new dormitories are named. Prescott served as Chairman of the Committee to select the names for these new units.

Jim Kimberly spent a part of the winter in California and the early spring at his place in Tryon, N. C., before returning to Neenah, Wis. Jim is Vice-President of the Kimberly-Clark Corporation, which has been an outstanding company in the production of special papers and paper products.

The Secretary and Mrs. Prescott are going to take a real vacation — the first in many years — and are sailing for England on June 14. Prescott is a delegate from the Institute to the Second International Congress on the History of Science and Technology, which will be held in London, at Science Hall, South Kensington, from June 29 to July 3. — SAMUEL C. PRESCOTT, *Secretary*, Room 10-405, M. I. T., Cambridge, Mass.

1895

The James Laurie Prize of the American Society of Civil Engineers for the year 1930 was awarded to John H. Gregory '95, C. B. Hoover, and C. B. Cornell, members of the society, for their paper entitled "The O'Shaughnessy Dam and Reservoir." The Award was made during the October, 1930, meeting.

During January, 1930, the late Frederick A. Hannah contracted through the Amtorg Trading Corporation in New York for service in Russia with the Peoples Commissariat of Workers and Peasants Inspection. Fred served six months, and refused to continue further service due to the unsatisfactory living conditions. He returned to the States, broken in health, and barely had time to relate his most interesting story, as he was stricken with heart failure and died on December 5, 1930. Get The Technology Review for January, 1931, for the full story.

Alfred E. Zapf, now living at Orange, Calif., met with a most unfortunate automobile accident during the spring of 1930. He spent a number of months in the hospital and finally was transferred to his home. During his convalescence he was taken for another automobile ride and the second fateful accident put him on his back again. We now learn that his wonderful perseverance and indomitable courage have returned him to the outdoors and he is doing his daily dozen on "three legs."

The New York '95 men were well represented at the dinner given to President Compton in New York City last December, when our Jerry Swope eclipsed his past records in the delivery of the remarkable introductory. He also addressed the American Academy of Political and Social Science in Philadelphia, on December 13, 1930, on "Providing Economic Security for Workers Through an Unemployment Insurance Plan."

Henry D. Jackson of Newton Centre, Mass., has been appointed the Class Representative on the Alumni Council. Henry is doing splendid work both for the Class and the Council. — Our Class was on the job at the Alumni Dinner at the Hotel Statler, Boston, on February 28. Nineteen attended and we concluded a semi-final reunion at this occasion.

Colonel Charles F. Tillinghast of Providence, R. I., has retired from his military activities and recently has been elected Vice-President and Managing Director of the Textile Finishing Machinery Company of Providence. — Eugene Clapp of 211 Congress Street, Boston, has become nationally famous through compiling golf course construction statistics. Gene is a wonderful golf enthusiast and a record of some of his achievements will be found in The Review for May, 1931.

Johnny Moore and Mrs. Moore have gone to Florida where Johnny expects to rest his throat. He is expecting to view the Everglades in silence. John will relate his experiences upon his return. — Dr. John Thompson Dorrance, of Campbell Soup fame, passed away September 21, 1930. Jack certainly had a most wonderful business career. Through his efforts he taught the world to eat soup out of a can and thereby amassed a small fortune of nearly 200 millions of dollars. Not a bad record for "dear old Jack." An account of his career will be found in The Review for November, 1930. Get one: it is a remarkable record.

Place the following record of deaths on your desk pad: In 1925: C. H. Parker, F. C. Hatch, Guy Carleton, E. J. Loring, J. H. G. Wolf. In 1926: W. P. Robins, J. W. Thomas, H. E. Smith. In 1927: C. L. Parmelee, W. N. Crafts, S. S. Clark, P. H. Withington. In 1928: J. F. Emery, H. M. Haven, H. W. Cotton, F. A. Davenport. In 1929: F. B. Sherman, Kate A. Bowen, John Dove, W. C. Brackett, W. J. Rice, F. A. J. FitzGerald, D. E. Aultman. In 1930: G. M. Holman, Mrs. F. W. Taussig (Laura Fisher), J. H. Parker, B. J. Clergue, John T. Dorrance, Frederick A. Hannah. In 1931: William S. Richardson, who died in Rome recently.

David B. Weston has returned from his operations in Venezuela, and his present address is Sharon, Mass. — T. B. Booth of Boston and Newton Centre reports the marriage of his son Edward Chapin Booth '25, to Miss Loraine Norris, 970 Arden Road, Pasadena, Calif. Miss Norris is a graduate of Pomona College, Claremont, Calif. The couple will reside in Syracuse, N. Y. — Space will not permit in this issue to tell you of the delightful and interesting trip of Mr. and Mrs. Frank A. Bourne to the West Indies and Mexico City. We also have something about Al Sloane, his work and his yacht. — LUTHER K. YODER, *Secretary*, Chandler Machine Company, Ayer, Mass. JOHN H. GARDINER, *Assistant Secretary*, Graybar Electric Company, Graybar Building, New York City.

1896

The outstanding feature of this year is the celebration of our Thirty-Fifth Anniversary scheduled for June 18 to 20 inclusive, at East Bay Lodge, Osterville, Mass. Present indications are that we will have a mighty good time, with an attendance of around 60.

One of the old graduates who will be much missed this year is Lloyd Wayne who, as he so aptly expressed it, has "joined the ranks of the prone." He had a series of boils which ended in a master boil behind the ear almost large enough to be dignified by the name of abscess. However, he seemed to be getting over these boils when he developed a carbuncle which put him into the hospital, where he still is. It appears to be a record-breaking carbuncle from the medical viewpoint, and he has been an object of interest by a continual stream of medical people. Although he is on the road to recovery, he will not be out of the hospital for some time yet. — L. E. Emerson cannot come this year because his daughter is getting married in June. Jim Melluish down in South America finds the distance too great for him to undertake the trip.

The Secretary has compiled some statistics from the biographies of the '96 Class Book, which has been under preparation for some time. The total number of names of students who were at one time or other registered with the Class of '96 is 616 (556 men and 60 women). The actual graduates of '96 were 190 (184 men and 6 women). Out of a total of 616, 129 are dead and for 49 we have no addresses. Of the remaining 438, replies were received from 347 and 91 failed to reply. Of those who have deceased, 21 were graduates (20 men and 1 woman) and 108 were non-graduates (94 men and 14 women).

The past year has taken an unusually heavy toll in the form of sudden deaths. George Merryweather passed away on June 8, 1930, Billy Nagel on August 4, Ben Hurd on August 6, and Ted Jones on September 12. — An impostor representing himself to be the son of various '96 men in turn has approached classmates in many parts of the country and obtained money by a tale of misfortune.

Bradley Stoughton, who is Professor of Metallurgy at Lehigh University, has also been appointed Metallurgical Consultant for the Baldwin Locomotive Works. Con Young, who wintered in Florida at Fort Myers, sung a solo as a part of the special Easter services in the Community Congregational Church there. Irv Merrell reports that he is now in the retired class, having sold out his interest in the Merrell-Soule Milk Products Company in 1928 to Borden. His health had been poor, and he welcomed the opportunity to retire. Since then he has been spending about eight months of the year at St. Petersburg, Fla., and the other four months at his summer place on Skaneateles Lake, about 25 miles from Syracuse. His retirement seems to have been most fortunate, as his health has improved steadily since that time. — H. C. Lythgoe spoke on April 16 to the Technology Chemistry Society on his work in the State House in the field of food and drugs. — Classmates will sympathize deeply with

1896 Continued

Arthur Baldwin on the death of his son Jere G. Baldwin which occurred on April 17 at Cornell University, where he was a sophomore.

A number of men made foreign trips. Bradley Stoughton, Mark Allen and M. S. Jameson were in Europe. The last named was ill in Boston for several weeks after his return, but is now back in Washington in good health. Myron Fuller had a long trip to South America, Henry Jackson visited Canada and Billy Anderson went to Jamaica. The first chapter of Fuller's trip was printed in the May issue of The Review and the remainder will appear in the fall.

Nathan Grover received the honorary degree of Doctor of Engineering from the University of Maine. — Dr. Coolidge was elected a member of the Technology Corporation. His latest achievement, recently reported in the press, is a 900,000 volt x-ray tube which discharges electrons at a speed of 184,000 miles per second, and will take a photograph through four inches of iron. It is 12 feet three inches long and 20 inches in diameter.

A number of sons of '96 are now at Technology. These include sons of Merryweather, Jameson, Harrington, Morse, and others. Morse's son graduates this year and has received the honor of being appointed by the Technology Christian Association as its representative at Robert College in Constantinople, where he will be an assistant in the Physics Laboratory. — Joe Sturtevant has received the signal honor of winning a law suit against Henry Ford over damages to his estate by the diversion of a brook on the land at the Wayside Inn, Sudbury, Mass. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M. I. T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

1897

It is with great pleasure that we hear that our old standby Proctor Dougherty has been elected President of the Washington, D. C., University Club. — You will also be interested to know that Harry Worcester has been elected as a Term Member of the Corporation.

We shall all regret to learn that our beloved classmate, Jesse B. Hubbard, died suddenly of heart disease early in May. He was born in Pittsfield, and after studying architecture for four years at Technology entered the employ of Towle, Fitzgerald and Company, stock brokers, as a telephone boy. He passed rapidly through all the departments and later became a partner in the firm. The firm dissolved in January, 1910, and became Fitzgerald, Hubbard and Company. He later became associated with Richardson, Hill and Company, and finally with Gurnett and Company in which concern he was a member of the firm when he retired February 1, 1931. He was also a member of the New York Stock Exchange. He leaves a widow and a son, Clive Hubbard, both living in New York.

Our Class has decided to have an outing at the Milton Golf Club on June 10 lasting all day with a good dinner served at 7 o'clock at the club house. We are indebted to our classmate Jack Ilsley for the arrangements, this being his home town and he being a member of the club. Owing to business conditions, it was decided that a longer outing this year would be inadvisable. This meeting is for men only and it is hoped that a large attendance will be in evidence. — JOHN A. COLLINS, JR., *Secretary*, 20 Quincy Street, Lawrence, Mass. CHARLES W. BRADLEE, *Acting Secretary*, 261 Franklin Street, Boston, Mass.

1898

Charley Hurter is the du Pont's expert in the use of explosives. He travels over most of the Americas inspecting the various engineering, mining, and agricultural works, recommending the proper explosives, and instructing in the application. On these trips he lectures on the use of explosives at the universities on the way. He has just given a course of three lectures at Technology on explosives.

We have just learned that Charley Smith has been through a long and serious sickness. It is remembered that he lives in Providence, where he is Vice-President and Assistant Treasurer of the Blackstone Mutual Fire Insurance Company which deals in factory insurance. We include a few words from his letter: "I have been very critically ill for a considerable time but I am glad to say I am pretty well along on the road to recovery now. For a period it looked as if our Class Secretary would have an item for his obituary column but the present outlook is he will have to wait a while longer.

"This is by way of explanation as to why you have not heard from me more of late. I have not seen any of the boys for a long time. As far as I know, we only have Frank Perry here in town and, barring a very occasional glimpse of him, I have somewhat lost contact as I have not been able to travel much in the recent past. I hope, however, the next time there are any signs of class activity I may be on deck."

Roy Peavey has been elected President of the Boston Chapter of the American Statistical Association succeeding Dr. Davis R. Dewey of Technology in the office. Peavey has been taking an enforced rest most of the winter on a Caribbean Cruise and in Florida.

It has been stated in these columns that Hollis Godfrey had been critically ill, and laid up for a long time as a result of an accident. The nature of the accident appears in this clipping from the Boston *Herald* of May 21. "Dr. Hollis Godfrey of 711 Boylston Street, President of the Engineering Economics Foundation, a prominent engineer, is seeking $25,000 damages in suits against the Gurney Elevator Company and the J. R. Whipple Company for injuries to his back suffered in February, 1926, when an elevator in which Mayor Nichols, he, and other engineers were riding, dropped from the second floor of Young's Hotel to the pit. The accident happened just after Mayor Nichols, Dr. Godfrey, and other engineers had been in conference over what would be the proper thing to do in a city emergency. The doctor had just given the board of emergency of the City of Boston an address on the subject of 'Breaking Depression.'" — ARTHUR A. BLANCHARD, *Secretary*, Room 4-160, M. I. T., Cambridge, Mass.

1899

Theodore Butler, 139 Queen Victoria Street, London, England, spent a month in the United States in the winter, and found several new lines that he is preparing to market on the other side. Butler could not get down to Washington because of lack of time, but we have a tentative engagement to meet in New York next time he is on this side of the Atlantic.

By devious ways I have received a note from Roland Stebbins in which he announces that he was married on December 17, 1930, to Madame Anne Delidaise, at his country place near Paris called La Closerie des Saules, Tessancourt, near Meulan. This is the famous French Country Inn of which we heard some time since, which he is running in conjunction with a restaurant at 30 rue du Quatre Septembre, Place de l'Opéra, Paris. He has issued a cordial invitation to Technology men to hunt him up when in this vicinity.

George A. Pennock, Assistant Works Manager of the Hawthorne Works, Western Electric Company, Inc., Chicago, Ill., lectured before the Senior Class at the Institute on Production Methods and Manufacturing Processes.

Arthur Herschel has moved from Albany to Montclair. James Ellery has left Erie, Pa., and has gone to reside at Gloucester, since the death of his father. William Flynn, formerly of New York City, is now with the Texas Power and Light Company, Dallas, Texas. Dallas is a long way from home to Flynn's way of thinking and the distance prevented him from attending the Reunion at Yama Farms. Other things prevented other people from attending: Harry White's son graduated and Harry had to be there. Everett Hinckley had a wedding and three graduations on his hands. Charles A. Smith of Atlanta had to be in New York in mid-June, so could not attend the Reunion the first of the month. Some accepted and had to cancel reservations. Some never got the notices as mail was returned, and if anyone has news of the following men, your Secretary will appreciate receiving the information: Dwight Farnum, Clifford M. Balkam, James T. Chapman, Eunice Critchett, Du Relle Gage, and John E. Congdon. — W. MALCOLM CORSE, *Secretary*, 810 18th Street, Washington, D. C. ARTHUR H. BROWN, *Assistant Secretary*, 53 State Street, Boston, Mass.

1900

The reunion party at the Cape in June, 1930, stimulated to a great extent the class interest which had been dormant for the preceding five-year period, bringing together as it did so many of the families.

1900 Continued

Some 34 class members, with a grand total of 61, took part and a great many letters have since been received, all enthusiastic about the good time we had. Another party in the shape of movies took place last January at the Institute with 34 members and ladies attending and it was voted by all a very enjoyable evening. Again at the Alumni Dinner in February the Class was well represented by a full table of ten.

During the year there have been published in The Review interesting letters from the following men, describing their travels over the globe: Chase, Grant, Bowditch, B. R. Johnson, Woodward, Batcheller, E. H. Davis and Cady. There were also letters of general interest to the Class from Sperry, Draper, Allen, Brigham, Jackson, Walworth, H. E. Osgood, Graff, Howe, Capt. Thurber, C. E. Smith, Russell, Silverman, Ziegler, Jouett, Clarence Brown, Dart, Wilbur Davis, Crowell, Price, Wastcoat, Pickersgill, Campbell, Bob Leach, Leary, Lawley, Richardson, Fitch, F. N. Conant, Patch, Oxnard, Angus, Keith, Merrill, Neall, Everett, Collier, and George Leach.

The sick list, we are pleased to say, is a small one as favorable reports have been received from Hurd, J. B. Conant, Ripley, and Sperry. These, together with telephone conversations, personal calls, changes of address, and so on make fully 60 from whom information has been received within the year, which is a very encouraging situation.

The Grim Reaper has dealt none too kindly with us in the last year and it is with sincere sorrow we record the passing of the following: George B. Ford, IV, August 13, 1930; Robert W. Burnett, Jr., VI, November 6, 1929; Albert V. Moller, II, November 12, 1930; and Fred E. Foye, XIII, March 22, 1931. It is hoped that in the succeeding years the toll will be lighter.

The Los Angeles *Record* of March 6 gives an account of Frank Gage and his radio program over KFVD in which he stages a new skit entitled "In Wesley's Barber Shop." Gage was with the Class from 1896 to 1899 and was renowned as a drama shark in his student days. — Price sends in notice of the marriage of his son, Harold, to Dorothy Ida Bird on May 2, at Clifton, N. J.

Good old Tom Perry comes to the rescue of the column with a nice long letter from which we glean that he has been appointed Chairman of the Louisville Alumni Association. His first duty was to arrange for a visit from President Compton. — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston, Mass.

1901

The Class Notes in this issue are to be edited and limited by the Executive Committee of the Alumni Association so I am advised by a form letter from The Review. I am further admonished that Sir Francis Bacon advised the deletion of the first third and the omission of the last third of any communication. This would seem to center the interest around the middle third, a suggestion of subtle impurity that leads me to question the capacity of the temporary editorial committee to deal adequately with such chaste utterances as I would otherwise normally indite.

As you know, the Class Reunion will be held . . . (deleted by the Executive Committee, one of whom runs a hotel in the neighborhood and objects to the mention of the place as advertising matter for a rival concern).

Al Higgins, the Strawberry King, will be in our midst. . . . He will return home on Saturday at the end of the Reunion. — Lammot du Pont is also to be present and has promised to repeat the performance of magic tricks which did so much to brighten the evenings of the 25th. . . . (Other interesting facts concerning Lammot deleted by the more recent members of the Corporation, who are on the Executive Committee and object to what they call the advertisement of a colleague.)

Neddy Seaver has also replied in the affirmative and has designated as his wish. . . . — Al Weil is coming over from New York and will travel down by motor car. (Al said that he would be glad to take down three or four men with him, but unfortunately some member of the board of censors is a stockholder in one of the Massachusetts bus lines.) — Bill Sweetser, who is a professor in the University of Maine, has arranged for a leave of absence and will be with us, but Teddy Taft, with a similar job at Technology, has got to stay and teach (this item was questioned but was finally passed by the censors in the hope that it might embarrass some of the instructing staff at Technology).

Bob Derby writes that by the G. . . . of G. . he expects to arrive on the third and will play golf during the entire visit. — Loring Danforth exhibits the same predilections as Bob but with becoming modesty says he will try to play golf. — John Boyle of Washington rings a variation on this by saying that he may or may not play golf, while Huse Blanchard of New York firmly and pithily says he will not play golf (the above was passed as several of the Committee are interested in sporting goods houses. They questioned Huse.) There is the question of the accent.

Bill Pepperell's missive states: "I shall, if possible, but can not state positively now." (The censors like this, it is so specific, helpful, and informative. They suggested that all of the replies might be phrased in this wise and thus constitute a spicy and intriguing item for our far-flung alumni group.) — Ted Davis says he may be present, but as he has forgotten when it is, where it is, and how it is, though he does know why it is (this last regarded as debatable, but finally passed), he expects to be on hand. — Your Secretary . . . (no self-advertisement can be gotten away with from so upright and intelligent a group).

I have done the best I could, fellows, but I think you will all understand the situation. I do think, however, I ought to add a word of comment about the Editorial Board of The Technology Review. In the ukase which I and others received, the onus of this restrictive legislation was placed on the shoulders of the Executive Committee. To those of you who know your Dickens, and at our age that should be many, I need only say "My partner Mr. Jorkins." But why should I dwell on these unpleasant matters? True, my spirit has received a blow from which it may never recover, but of what avail the individual when the good of the mass is in question? It remains only for me to close (this last sentence is the only one which has evoked any enthusiasm from the editors). *Vale*. — ALLAN W. ROWE, *Secretary*, St. Botolph Club, 4 Newbury Street, Boston, Mass.

1902

Bob Baldwin has been on an extensive trip to the Far East looking into the rubber and tea business. He wrote from Colombo, Ceylon, in February and will be back in this country before these notes are out. Bob is a grandfather two ways, and as far as we know, is the first classmate to have grandsons bearing the family name. Baldwin is returning via Europe and en route plans to visit his brother E. A. Baldwin, '96, in Paris. — Speaking of grandchildren, we are not through with the first generation yet, Cynthia Romeyn Bassett, born October 13, 1930, is — until later claims are filed — the baby of the Class.

The Portland (Ore.) *Journal* for March 16 carried a picture of a conference of three banking officials in that city: Elisha Walker of the Transamerica Corporation, C. F. Adams, and Ernest B. MacNaughton, President and Vice-President, respectively, of the First National Bank of that city. MacNaughton is also President of the Security Trust and Savings Company of Portland. The text carried the interesting note that MacNaughton and Walker were classmates at M. I. T. — Lester Hammond's address is the Hotel Collingwood, New York City.

Philip Whitney, on account of poor health, was granted a year's leave of absence from his post as Professor of Graphics in the Department of Architecture at the University of Pennsylvania. He spent the winter in Florida and the spring in Vermont. His health is improving and we trust that he will be able to resume his duties in Philadelphia in the fall.

Thayer Gates has moved his offices to 66 Leonard Street, New York City. — Miss Bates, who is dietitian at the Gardner State Colony, East Gardner, Mass., has returned to her duties with restored health after a term in the hospital for a serious operation. — Henry G. Allbright's address is the Corinthian Yacht Club, Tiburon, Calif. — The Engineers Public Service Company, of which Kellogg is President, has moved its headquarters from 120 Broadway to 90 Broad Street, New York City. Classmates will please note this new address for our New York Vice-President. — Harry Strand has severed his connection with the Penn Tile and Construction Company of Boston. His residence address is 1284 Beacon

1902 Continued

Street, Brookline, Mass. — Arthur More has moved to Florida, his address being 186 S. E. 8th Street, Miami. — Lewis Moore, in addition to his many other connections, is consulting engineer for the trustees of the Boston Elevated Railway, also for the new Charles Street Station which the Transit Commission is to build on the Cambridge tunnel line. — Matthies was recently honored by his associates of the Western Electric Company, having been tendered a luncheon in recognition of his 30 years of service with the Company. Matthies started in as an office boy with the Western Electric Company before coming to Technology. His work with the W. E. is centered on improvements in the automatic switching system. — Lou Cates is President of the Mining and Metallurgical Society of America. — Bob Brown is with the Calco Chemical Company of Bound Brook, N. J.

Rayne Adams died at the hospital in Beverly, Mass., on April 6, after an illness of two weeks. Adams had retired from the practice of architecture to devote his time to writing on architectural subjects. Several articles from his pen in regard to various architects have appeared in *Architecture* and other professional journals. Since leaving New York, Adams had resided at Annisquam, Mass. He is survived by his second wife, Lelia Parker. He had no children.

Word has been received of the death in Shanghai of Frederic W. McIntyre. McIntyre has been located in Shanghai for many years handling electrical machinery and other American equipment. He has not been heard from directly at class headquarters since 1923. McIntyre was married in 1914 to Irene Howe, and a daughter, Barbara, was born the following year. — FREDERICK H. HUNTER, *Secretary*, Box 11, West Roxbury, Mass. BURTON G. PHILBRICK, *Assistant Secretary*, 246 Stuart Street, Boston, Mass.

1903

The Class held its Annual Reunion at the University Club during the All-Technology celebration, and 22 members and wives attended. Report of class affairs was given, and John Howard's desire to be relieved as Class Representative on the Alumni Council was acceded to, Cushman being elected to take his place. — The secretaries have heard directly from Morse, Smith, and A. P. Rice, during the year, and indirectly from Potter, Cook, and Hunter. Morse is in Indianapolis, Smith in consulting practice in Chicago, Cook and Hunter also in Chicago, Rice with the Mass. Highway Department, and Potter at Purdue.

In March, Haddock, Aldrich, and Stiles lunched with the secretaries, and class affairs in general, the 1931 reunion in particular, were discussed. — In April Loughlin, who is head of the metalliferous division of the U. S. Geological Survey, addressed the students of the Geology Department at the Institute. — Notice was received recently of the death in an automobile accident of R. T. Wilder. Further particulars are being secured and will be published later. — F. C. Reed, was elected Vice-President of Westinghouse Electric Elevator Company at a meeting of the Board of Directors in Chicago in March.

The annual reunion of the class will be held June 18 at the University Club, Boston, and it is hoped every member who can will be there. Plans for the Thirtieth Anniversary in 1933 will be discussed. Boston and Massachusetts members of the Class are particularly asked if they would like to go to Chicago for that reunion and take in the World's Fair at the same time. — The Class Representative on the Alumni Council would welcome the ideas of the Class in regard to the proposed reorganization of the Council. This is an important matter, and if you have definite opinions, be sure to express them where they can be heard and heeded. — FREDERIC A. EUSTIS, *Secretary*, 131 State Street, Boston, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, 89 Broad Street, Boston, Mass.

1904

Harry Rollins has recently retired from active leadership of the Des Moines Hosiery Mills Company. Harry and his wife spent the spring of 1930 in an extended trip around the Mediterranean Sea. Selby Haar is connected with the bureau having charge of equipment for the New York subways. — George H. Powell died in Baltimore on May 2, 1930. — Tammy Rockwood has developed into a moving picture expert. For the past few years he has taken pictures of the Class Reunions and they form an interesting portion of the Class records. — On June 6, 1930, a Class dinner was held at the Brae Burn Country Club in connection with the events accompanying the inauguration of the new President of Technology. The dinner was well attended as were the other events at the Institute and at Swampscott, about 25 members and wives being present.

The Annual Class Reunion was held as usual at East Bay Lodge, Osterville, on June 27, 28, and 29, 1930, and there were 22 members present. Charlie Homer lives in Quincy and is at present selling ship telegraphs for the Corey Company and interlocking devices for electrical switches. — On August 16, 1930, Edwin P. Tripp was married to Miss Clara Lindsey McComb. — Cy Ferris, Vice-President of Stone & Webster & Blodgett, announced the birth of his sixth child on September 16, 1930, in the person of James W. Ferris. — Bill Evans conducted the class representation at the annual dinner of the New York Alumni and did a fine job as he succeeded in inducing six class members to be present.

Earle Ovington is still very much interested in flying. He delivered a paper on "Flying From The Private Owners' Standpoint" before a meeting of the American Society of Mechanical Engineers held in Seattle, Wash., about a year ago. Since that time he attempted to drop a mail bag onto an ocean steamer somewhere off the coast of California. He failed to hit the steamer but did succeed in hitting the Pacific Ocean. Guy C. Riddell is located in Moscow as consulting engineer in the employ of the Soviet Government. — Some time ago Mert Emerson severed his connection with the Lamson Company and the Pneumatic Service Company and is now New England representative for the United Engineers & Constructors, Inc.

Charles F. Barrett is with the Standard Electric Time Company in Springfield, Mass., and his oldest boy, Frederic, is a freshman at M. I. T. — Arthur O. Roberts, after a long period of service with the Amoskeag Company of Manchester, N. H., severed his connection with that firm and became connected with the Lorraine Manufacturing Company, Pawtucket, R. I., where he was for some months. He is at present living in Manchester, N. H.—Bill Eager is with the Whitman & Barnes Company in Detroit where he has been for many years. — Arthur Kemper is with the Butte Land & Investment Company, Butte, Mont. — E. A. Holbrook is Dean of the University of Pittsburgh. He has attended a couple of recent reunions and also represented the University of Pittsburgh at the inauguration exercises of President Compton. Al Read has retired from active business life and is living in Pawtucket. He is a constant attendant at reunions and is an expert golf player. Don Galusha is one of the very prominent officials of the Dwight P. Robinson Company, Engineers and Constructors.

O. G. Thurlow is Vice-President in charge of construction of the Alabama Power Company in Birmingham. He served on a commission appointed by the State of New York to report on the development of the water power of the St. Lawrence River. He has also been appointed one of a Board of Trustees who administer a fund instituted under the will of Harvey G. Woodward '88 for the purpose of founding an educational institution in Alabama. Currier Lang has disposed of his interest in the Canadian Lamp & Stamping Company and at present is not connected with any industry. Lang was in Boston recently and I spent a very pleasant hour at lunch with him and Mert Emerson.

A. M. Holcombe is a member of the firm of Emery, Booth, Varney & Holcombe, patent lawyers, with headquarters in Washington. His daughter, Priscilla, is at Cornell University and his son is attending St. Alban's School in Washington and expects to enter Technology in the fall of 1932. — Selskar Gunn is now Vice-President of the Rockefeller Foundation and has entire charge of the work of the foundation in Europe. — Austin Y. Hoy has announced the formation of Austin Hoy & Company, Ltd., Engineers and Merchants, Bush House, London. Until the formation of this company, Hoy for many years was the London manager for the Sullivan Machinery Company.

Dan Comstock now has offices in the Chamber of Commerce Building in Boston and advised me of the birth of his second son, Charles Barton Comstock, on September 25, 1930. — Roy E. Dimmock

1904 Continued

is located in Sydney, Nova Scotia, in the Metallurgical Department of a steel plant. For the past two years he has not been in the best of health but is now recovering. Charlie Haynes is with the United States Rubber Company, located at 1790 Broadway, New York City, and is in charge of the purchases of chemical and allied materials.

Bernie Blum is now Chief Engineer of the Northern Pacific Railway Company and lives in St. Paul, Minn. — George Curtis is located in Pittsfield, Mass., where he is in the service of the Commonwealth of Massachusetts in connection with highway work. George has retained all his early athletic ability. Parker lives in Reading and his headquarters are in Boston. — Carle Hayward was injured in an automobile accident on March 17, 1931, being thrown through the windshield of his car. He was severely cut about the face but his eyes were not injured and he has recovered in good shape. — HENRY W. STEVENS, *Secretary*, 12 Garrison St., Chestnut Hill, Mass. AMASA M. HOLCOMBE, *Assistant Secretary*, 3305-18th Street, N. W., Washington, D. C.

1905

Here's to you, Frank Chesterman, the first '05 man elected to Term Membership in the Institute Corporation, a credit to your Class and Technology. — The annual class dinner was held at Walker Memorial on April 7. The Twenty-Fifth Reunion movies were shown and a good deal of enthusiasm developed. Then Marcy exhibited some of those he took last summer in the mountains of Switzerland and the Italian lakes. Wentworth showed one reel of several taken in Japan while he was there on the Engineering Congress in 1929. When he told of his being mistaken for the Japanese Crown Prince we howled. The following were there: Ball, Boggs, Buff, Damon, Davis, Donald, Fisher, Gilman, Hadley, Lewis, Lord, Marcy, Parsons, Strickland, Wentworth, and Winship.

In spite of our extensive advertising, but two groups, totaling 30, have seen the reunion film. We wonder whether it was worth while for the photographers to go to the trouble of taking the pictures and then edit and title. It would seem not.

Hallett Robbins, consulting metallurgical engineer for Oriental Consolidated, has returned to the United States after several years in Korea and will make his headquarters at the Company's New York office, 15 William Street. — Jim Barnes' present address is 714 James Street, Syracuse, N. Y. For our new readers we may add that he recently resigned the Presidency of the Louisville (Ky.) Railway Company. — Capt. Russell Wilson is with Division 10 of the Battle Fleet, San Diego, Calif. — Harry Wentworth says that "an ex-officio member of all committees of the Massachusetts Golf Association has a busy existence during March, April, and May." He is Secretary-Treasurer of the Association.

After a year in New York State, Frank Drake landed in New York City in June, 1929, as Supervisor of Gas Operations for the Utility Management Corporation (formerly The J. G. White Management Corporation), 120 Wall Street. He covers the entire Associated System and is contact representative for their New England Maritime and Gas Utilities properties.— In South America for a couple of years for Millikin-Blaw Knox, Jack Flynn is now with Blaw Knox, Ltd., New Oxford House, Hart., London, W. C. I., England.

At the Alumni Council meeting on April 27, your Secretary sat with Damon and MacLean, both of whom are club representatives. Your Secretary is a member-at-large. Damon took us out to his home in Waban, by the banks of the Charles, where we slept peacefully, an hour later than planned, due to the fact that John had set every clock in the house for daylight saving, except the alarm clock.

Henry Keith writes: "The Naval Architecture Department is still making plans and estimates for its hoped-for towing tank, but nobody knows when it will be built. I still spend one day a week at Fore River on some of their problems and enjoy that very much. Like everything else, shipbuilding has become highly technical these days and there are certainly many interesting developments in it." — Andy Fisher has for some time been in the advertising department of *The Textile American* and is enthusiastic about the paper's management.

The Touraine, Myron Helpern's glove and stocking salon on Fifth Avenue, New York, has a front by Sid Strickland and is frequently admired by your Secretary, who recently got courage to inspect the interior. The glove section in front seemed safe but he hesitated upon looking into the rear section, figuring it was a try-on place for the silk stockings. It's a nice store, moderately "contemporary" and every saleswoman was busy. This is their fifth store. Helpern, the President, made no mistake in giving up engineering.

Grove Marcy is getting even more active and prominent, if that is possible, in the Boy Scouts of Newton, giving a very large amount of this time and energy to the cause and accomplishing a lot of good. — A breezy letter from Paul Paine, socially '04, S.B. '05, discloses the whereabouts of George Wald as Huntington Land Company, Pacific Electric Building, Los Angeles. Payne lives in Beverly Hills.

At last, through the courtesy of Harry Wentworth (captain in the Freshman Army you remember), we received photographs of the Swampscott Outing of June, 1930. This is the first information received. It is easy to recognize Under Secretary for Swampscott Jones (in command for the peerade), Color Sergeant Charlie Johnston, and in order of appearance, Allen, Spalding, Buff, Wentworth, Daniels (the Scientific King), Charlesworth and Chesterman (still together), Lovejoy, Cole, Tower, Ayer, and Whittemore. We can almost identify the other chap in the '05 hat, behind Sid Cole, but who is the fellow in the ice cream pants? It was probably a nice party but your scribe could not go and has been unable to get a report.

During the past year several of our class have been abroad, Grove Marcy on pleasure to the vacation ground of Europe and Frank Chesterman — well, he hasn't written in about it yet. Ralph Whitcomb made a long business visit to Russia, was home for ten days, and then back to Russia. Ralph won't write and the object can only be guessed. Dick Senger made what was probably a business trip to Peru but he seemed to get a lot of fun out of it. He visited the ruins of the pre-Inca capitol, Chan-Chan, and flew 300 miles from Trujillo to Lima. Elmer Wiggins and Charlie Dean also were in Europe, wholly for pleasure.

Charlie Boggs and Ros Davis sailed in the ocean yacht race to Bermuda in June, 1930. Both had been down before. They agree that it is a great form of sport. — After several years on Puget Sound, Ted Steel is back in New York. — Bob Lord is now President of his tannery in Woburn, Mass. — George Rhodes has built millions of dollars worth of natural gas pipe lines and was invited to address the World Power Conference in Berlin on the "Transportation of Natural Gas."

Our Twenty-Fifth Reunion was celebrated at Oyster Harbors, Osterville, Cape Cod, Mass. Fifty-five men and wives were there for three days and thought it a fine place. But there was room for many more. With good weather the golf, tennis, and sailing were enjoyed. At previous reunions, baseball had been the high spot but it seems that we are now too old. More classmates gathered at the Institute for the Open House and more still at the Class Dinner at The Sheraton, in Boston.

Bob Farrington was killed in an automobile accident in November, 1930. Bob ran the last reunion and his loss will be keenly felt by his many friends.

And finally, a little advertising addressed to our new readers. The '05 notes this year, not including this issue, have filled 21 columns, or seven pages, in The Review, and have contained messages from, or news of, 115 members of the class. About 175 read these notes. — ROSWELL DAVIS, *Secretary*, Wesleyan Station, Middletown, Conn. Sidney T. Strickland, *Assistant Secretary*, 20 Newbury Street, Boston, Mass.

1906

Gas Age Record (April 4, 1931) included the notice of the election of A. C. Taylor, II, as President of the Consumers Gas Company of Reading, Pa. The notice included the following: "Mr. Taylor, who has been associated with the Consumers Company since 1922, has been in the gas business ever since his graduation. His experience has been unusually broad in all phases of operation. He began as street clerk with the Philadelphia Gas Works, where he advanced to assistant district superintendent. In 1910 he went to Harrisburg as main and service foreman, and about a year later became superintendent of the gas department of the Charleston Consolidated Railway and Lighting Company, Charleston, S. C., and from 1913

1906 Continued

to 1922 he was assistant engineer of the Allentown Gas Company and later engineer of the combined Allentown and Bethlehem properties. In Reading he has advanced to the head of the company through the positions of assistant manager, and Vice-President."

This from Professor Locke: "William C. Furer of Honolulu has recently acquired a new honor, that of President of the Hawaiian Chapter of the American Institute of Architects, of which he had been Secretary for a number of years. He is also Secretary of the Territorial Board of Registration for Professional Engineers, Architects and Surveyors in the Territory of Hawaii, and Secretary of the Engineering Society of Hawaii. He renders such faithful service in secretarial jobs that they descend upon him unsolicited." — Incidentally, you may have noticed that Furer's name was on the last ballot of the Alumni Association as Representative-at-Large for a term of five years.

Also from Professor Locke: "Robert Hursh who is with the Empire Zinc Company in New York was away during the month of March on a business trip through the South and Florida. At least, this is the report that he issued, but some of his friends are questioning what business of a mining nature he was able to find in Florida."

This offers our first opportunity to record '06 participation of the Alumni Banquet which was held on February 28. This banquet presented the innovation of including the ladies. The members of the Class responded very well as we had a total attendance of 14. The following can be recorded as Mr. and Mrs.: W. G. Abbot, Ginsberg, Kasson, Kidder, Philbrick and Wetterer; and the following stags: Hinckley and Rowe. As '06 has always been more generous in including the ladies in their programs than some of the other classes, naturally the pleasure of having them at the dinner was approved by the Class. — Preparation for a reunion always assists in uncovering news items. The following are a few of the most interesting.

George Hobson, who is a Captain in the army and has been located at the Schuylkill Arsenal in Philadelphia, leaves on August 19 for a two-year term of duty in the Philippines. With George's arrival in Manila there will be three Course I men in Manila, as Ed Hyde and Paul Mack are already there. They have nearly enough to start a '06 club. — Herbert Dean reports the birth of a son, the second child, Robert Packer Dean.

A letter from M. W. Hayward, III, mentions the organization of a Technology Club in Monterrey, Mexico. He is the only member from '06. He writes that he saw Bill Deavitt in Los Angles and Jack Barry in El Paso recently. — Charlie Mowry has a daughter who is graduating from Wellesley and is to be married the same month. This program, added to the fact that Charlie recently spent some time in the hospital, prevented his attendance at Oyster Harbors. We shall miss him but send our congratulations.

The Boston '06 group has been reduced by one very active member, Charlie Wetterer, who has moved to New York. Stone & Webster have decided that they, too, must select Manhattan Island as a site for their headquarters and Charlie's move was inevitable. He was transferred about May 1, just when we thought we had him lined up to do some heavy work in connection with the reunion. He is responsible for the first notice, however, and the replies to that letter show that the crowd have not forgotten his activities in the Institute days. — Two of our classmates are spending some time in Europe, namely, Eleanor Manning and Sherman Chase — no collusion (Ned Rowe). At this writing I know thay are going to be very much missed at Oyster Harbors.

We regret to include two deaths in our notes: the first that of R. H. Booth, who died in Providence, R. I., on Sunday, March 22. — Also the death of R. C. Sprague, who died May 14, 1930.

Special! Extra! The Boston *Post* for May 21 included the following under "Marriage Intentions." Eleanor Manning, Architect, and Johnson O'Connor, Engineer. This explains the trip to Europe. Congratulations to both. A more complete story will appear in the next issue of The Review. — JAMES W. KIDDER, *Secretary*, Room 505, 261 Franklin Street, Boston, Mass. EDWARD B. ROWE, *Assistant Secretary*, 11 Cushing Road, Wellesley Hills, Mass.

1907

Lawrence Allen, who has had serious sickness during the past fall and winter, is much better and is at his office with the United Shoe Machinery Company, 140 Federal Street, Boston, practically every day. — With characteristic thoughtfulness, Frank MacGregor sent us a letter with a newspaper clipping, telling how our classmate, H. P. (Horse-Power, alias Petie) Baker, Vice-President of the White Haven (Pa.) Savings Bank, was held up by bandits in an attempted robbery of the bank on March 17, 1931. Petie says that the sensation of looking for several minutes into a gun held by a nervous bandit is in a class all by itself.

Jim Barker is Vice-President and director of Sears Roebuck Company at Philadelphia, being in charge of eastern territory. — Carl Bragdon is chemical director and Secretary of Ault & Wiborg Varnish Works, Inc., at Cincinnati. — Leon Chaffee, Professor of Physics at Harvard University, is enjoying his sabbatical year traveling in Europe. — Paul Cumings and Stanley Wires together direct the fortunes of E. Stanley Wires Co., Inc., tiling, at 120 Boylston Street, Boston. — Martin Wisenhart is Vice-President and General Manager of Bausch & Lomb Optical Company, Rochester, N. Y.

John Frank, as President of Ilg Electric Ventilating Company of Chicago and as President of the National Association of Fan Manufacturers, is one of the leading men of the country in the ventilating business. Hud Hastings, as one of the professors of our class, is carrying on his industrial engineering work at Sheffield Scientific School at Yale, and Ralph Hudson, professor of electrical engineering at Technology, has attained a position of eminence in his field of activity. — J. C. Kinnear, General Manager of the Nevada Consolidated Copper Company, was elected President of the Nevada Mine Operators Association at its annual meeting in March, 1931. — Frank MacGregor, referred to before, is General Manager with du Pont Razor Company, at 2 Park Avenue, N. Y. With the du Pont organization in a different department, is Hermann Mahr, superintendent of a large section at the Company dye works plant in Wilmington, Del.

In investment lines, John McMillin, as Vice-President of Cities Service Securities Company, 60 Wall St., N. Y., occupies a place of responsible prominence. — Our genial Class President and active Technology alumnus, Alexander Macomber, consulting engineer, has specialized in the management of gas companies, and holds a position of authoritative importance in this department of business. — Harry Moody, who never misses a class reunion or an opportunity to coöperate in class activities, is general sales manager of Edge Moor Iron Company, at Edge Moor, Del. — We met Fred Moses on the street in Boston last April and he looked hale and hearty as well he might, having just returned from a trip to Europe. Fred is President of the Firemen's Mutual Insurance Company, at Providence, R. I.

Donald Robbins, active in alumni affairs, is an engineer with Hornblower & Weeks, bankers and brokers, at 60 Congress Street, Boston. — John Thomas is in charge of all manufacturing on the Pacific Coast and Hawaiian Islands for the American Can Company, address: 111 Sutter Street, San Francisco. — The Atwater Kent Foundation announces that Carl Trauerman of Butte, Mont., President of the Butte Radio Club and interested in many civic and musical affairs of the state, is State Manager of the Fifth National Radio Audition. Carl's real business occupation is being President of the Montana Stock and Bond Company.

Albert E. Wiggin is manager of the reduction departments of the Anaconda Copper Mining Company in Montana, Anaconda, Great Falls, and East Helena. — Genial Dick Woodbridge is chemical director of the Smokeless Powder Department of the du Pont Company at Wilmington, Del. — Harold Wonson left the International Shoe Company during the past winter and is doing responsible executive work with the Commonwealth Shoe Leather Company at Whitman, Mass. — BRYANT NICHOLS, *Secretary*, 2 Rowe St., Auburndale, Mass. HAROLD S. WONSON, *Assistant Secretary*, Commonwealth Shoe and Leather Co., Whitman, Mass.

1908

The last dinner and meeting of the Class for the 1930–31 season was held at Walker Memorial on May 12. Fourteen

1908 Continued

fellows were present: Alton M. Cook, Myron Davis, Lang Coffin, Frank Towle, Everett Newhall, Bunny Ames, Les Ellis, Robert Todd, Harold Gurney, Arthur Skillings, Jefts Beede, Bill Booth, Stiles Kedy, and Link Mayo. Nick Carter was away on a business trip to Canada and unable to be present. He ran into Longley up in Toronto and sent a telegram of best wishes to the Class dinner but with the usual speed of Canada, the telegram never showed up until the next day.

We were able to obtain from the Bureau of Mines a descriptive film on the making of an automobile spark plug manufactured by the Champion Spark Plug Company in conjunction with the Bureau of Mines, and this was shown through the kindness of Jefts Beede, together with other films. A most enjoyable evening was passed and we broke up about 10 o'clock.

We have had a few letters come in in response to our class dues and one from John H. Caton states that after April 25 his address will be care of American Embassy, Santiago, Chile, South America, and we know if any of our classmates are down that way they will drop in and say "hello" to him. — C. O. Brown writes from New York that business is rotten, as everybody knows, but that perhaps in time he will have a chance to get an afternoon off to play golf. — Gregory M. Dexter writes from Scranton, Pa., that he is putting a woodworking plant on its its feet, the same being the Finn Island and Company.

We regret to note that we have received notice of the death of two of our classmates. On April 10 we received a letter from Mrs. Herbert S. Eames of West Springfield, Mass., in which she states that Herbert died on February 7 after an illness of four years. This was a great shock to all of us as none of us knew of his illness and, in fact, the Alumni Association have no record of his death. — We have also heard from Mrs. John S. Coye from Fontana, Calif., that Coye died on March 20. This is all the news we have about his death but we have written to get further particulars. — HAROLD L. CARTER, *Secretary*, 185 Franklin Street, Boston, Mass.

1909

In reviewing the activities of the Class during the past year, we are happy to note the election of Thomas C. Desmond as a Term Member of the Corporation. He will have the pleasure of serving with another of our classmates, Maurice R. Scharff, who is also a Term Member of the Board.

Simultaneously with the announcement of Tom's election to the Corporation, was that of the election of Bradley Dewey as President of the Alumni Association for the coming year. It is an interesting fact that, for two consecutive years, two '09 men will have been President of the Alumni Association, Tom Desmond having just completed his term of office this year. — Brad Dewey is President of the Dewey and Almy Chemical Company, Cambridge.

Bernice E. Hutchinson, Vice-President and Treasurer of the Chrysler Corporation, was one of the speakers at the open meeting of the Association of National Advertisers recently held in Detroit.

A live interest in Technology affairs has been shown during the past year by our group of Alumni in New York City, who have held occasional luncheon meetings, thus affording the members of the class the opportunity of renewing friendships formed during undergraduate days at Technology.

John Nickerson, who for a number of years has been associated with Cheney Brothers at South Manchester, Conn., is a member of the Professional Divisions Executive Committee of the American Society of Mechanical Engineers. — Announcement was recently made of the wedding of Henry W. Dun, Jr., and Miss Marie V. DeNervaud at New York City, which took place in the chapel of St. Bartholomew's Church, in the presence of relatives and a few close friends. The Reverend Angus Dun, a brother of the groom, was the officiating clergyman. — CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. PAUL M. WISWALL, *Assistant Secretary*, General Foods Corporation, 250 Park Avenue, New York, N. Y. MAURICE R. SCHARFF, *Assistant Secretary*, 19th Floor, First National Bank Building, Pittsburgh, Pa.

1910

Christiansen writes in the following letter: "Am located here in Detroit as Vice-President of the Ainsworth Manufacturing Corporation, whose business is to supply the motor car manufacturers with certain body and chassis parts. I have been with this company for the last five years and am pleased to report that I have had more fun and kick out of this work than any previous connection. . . ."

The following letter came from E. W. Chaffee: "As you will note by my letterhead, I am still in North Dakota, and at present practicing as a landscape architect, and using all I can remember of our old Mechanical Drawing course, as well as a lot of free-hand and perspective that I have picked up since, so maybe it was worth the effort. . . ."

Carroll Benton sent in this clipping from the New York *Herald-Tribune:* "Mr. and Mrs. Nathaniel Seeley, of Stamford, Conn., announce the birth of their fourth son, David Stevens Seeley, at Miss Lippincott's Sanatorium."

Phil Burnham is at last heard from: "As you have put it up to me to say something, I herewith make my first contribution and being my first, I'll summarize my last 20 years as follows: In 1915 I married Mary Derr Phillips of Wilkes-Barre. We have three daughters and for the last 15 years have lived in Summit, N. J. Since graduation, with the exception of a couple of short intervals when I got sidetracked and wasted some time getting back on the main line, I have been plugging along architectural lines in New York City. Right now I have a perfectly good but small office in perfect order and with everything in its place. It is so shipshape that I am afraid it would never be recognized as an architect's office. The only thing lacking is business. . . ."

Herb Cleverdon says he is still at the old stand at 46 Cornhill, Boston, with two partners. The firm is Cleverdon, Varney and Pike. — I have reached the stage where I have gone back many years — that is after supper when the problems of geometry are presented to Dad to solve, before passing on to the merits of balls and bats. I saw Phil Burnham the other day in his office and kept him from his work until my train was ready.

Bob Burnett sent in the following: "This is the time of year to determine to spend your vacation at Watch Hill or, in fact, at any of the beaches or vacation beauty spots in South County or the eastern corner of Connecticut. Then if the electric service you receive wherever you are located in this area is rotten, call Bob Burnett and tell him about it. My office is at South County Public Service Company, Westerly, R. I.

"Westerly is my choice of an ideal place to live. It is a real contrast to the iron mining region of northern Minnesota, where the first few years after graduation I attempted to qualify as a mining engineer. Since then the gas and electric utility business has provided my bread and butter and enabled me to support my family. The best wife in the world has encouraged and assisted me during the past 20 years. April 13, 1931, was our twentieth anniversary. Next year our older son will be entering Technology wearing his father's altered pants, that is, providing he makes the grade on the entrance examinations. Otherwise, I presume it will be another year of prep school. My oldest daughter considers herself quite grown up. She is in the first year of high school and according to my ideas is destined to become a scientist or engineer and an honest-to-goodness Technology man. Our second son, and the real skipper of our small sailing boat, and his younger twin sisters complete our family quota.

"My one hobby is small sail boat racing. I would like to know more about Seeley's deep sea yacht racing. He told me a little about it at the Alumni Dinner last year." — DUDLEY CLAPP, *Secretary*, 40 Water Street, East Cambridge, Mass.

1911

Technology's Open House this year was veritably bigger and better than ever and an even dozen of us gathered in the North Hall at Walker Memorial that evening, May 2, and after one of Pancho Bridges's fine dinners and an interesting talk-around, with Reunion plans predominant, we visited the interesting exhibits at the various buildings. The group consisted of Obie Clark, George Cumings, Dennie and Jack, Bill Hodgman, Ed Kenway, Morell Mackenzie, Ted Parker, Carl Richmond, O. W. Stewart, Ted Van Tassel, and Emmons Whitcomb.

Bill Hodgman, now serving his second year as Mayor of Taunton, gave us interesting sidelights on his political career

1911 Continued

and his work as a partner of Hodgman Manufacturing Company, while his Theta Chi running mate, Mackenzie, told of the progress of Sayles Finishing Plants, Inc., with which concern he is a Vice-President and Manager of the Phillipsdale (R. I.) plant. We were also glad that Ted Van Tassel, up from Norwich, Conn., ran into Ed Kenway, who is with the United Shoe Machinery Corporation in the Hub, and brought him along to the dinner.

Two more '11 children — and by the way, who's going to be the first '11 grandfather? Nat Stevens, II, and his wife announce the arrival of their fourth son, David Stevens Seeley, on April 23 at Stamford, Conn. On Mother's Day, May 10, Carl Richmond, I, became a father when his wife presented him with a son, Richard Arkwright Richmond. May they both live long and prosper!

Harold Babbitt, XI, a member of the faculty of the University of Illinois at Urbana, sends best wishes for the Reunion and regrets he cannot attend. He says: "In 1929–30 I took a trip around the world, starting out in Japan at the World's Engineering Congress. I had planned to come back in September, 1930, but cut the trip short to get married again in July. I am now the proud father of four children: a married daughter, 24; a daughter in college; a son graduating from high school; and a son finishing his junior year in high school. That's doing fairly well for a dull year, but compared with the activities of other hustling '11 men it's probably only a start!" By the way, Bab looks like a fair bet for the first '11 grandfather, *n'est-ce pas?*

Clarence Dow, I, formerly President of The Turner Corporation, building materials, has branched into a new line of his own, with splendid and increasing success. He is now President of the Federal Coffee Company at 171 Federal Street, Boston, and in addition to his wholesaling he operates a sandwich shop there and business is deservedly increasing regularly, so Clarence told me when I visited him there recently. Drop in some day!

Joe French, IV, is now the boy with the long address — c/o Gosproectstroy, 2/10 Bolshoi Cherkassky Per., Moscow, U. S. S. R.

In its recent report to Governor Ritchie of Maryland, advocating future construction, the Chesapeake Bay Bridge Commission commented most favorably on the work of an engineering committee under the leadership of Ban Hill, I, as follows: "Although the Commission has had no funds available for engineering studies, legal advice and other expenses, we have had the benefit of the best possible engineering advice through the courtesy of the Engineers Club of Baltimore, which appointed a Committee, under the chairmanship of Bancroft Hill. Mr. Hill, in particular, and his associates, have devoted much time and study to preparing estimates and in assembling the record of experience in bridge and tunnel building in other states." — At the annual meeting and election of the Boston School Men's Economic Association in mid-May, Art Leary, I, of Boston English High School Faculty, was elected Treasurer.

We have heard indirectly that Tod Meyer, II, is now with Kermath Manufacturing Company, 5890 Commonwealth Avenue, Detroit; Bill Shepherd, VI, represents A. J. Brandt, Inc., of Detroit in Ohio, being located at 466 Lockwood Street, R. D. 5, Akron; Vic Willis, I, has left Philadelphia to return to St. Louis, being located at 339 Park Road, Webster Groves, Mo.; and Bob Wood, VIII, has left Buffalo and is now in Rochester, N. Y., located at 243 Buckland Avenue. — ORVILLE B. DENISON, *Secretary*, Douglas Inn, Douglas Hill, Maine. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

1912

Mr. and Mrs. David J. McGrath decided this spring to treat themselves to that long hoped-for Caribbean Cruise, and sailed on the S. S. *Evangeline* for Nassau, Kingston, Jamaica and Havana, Cuba. The ship was our "hotel for the cruise," and all shore excursions were prearranged so we had nothing to do but enjoy ourselves, which we did every minute of the trip.

We have had a short note from Harry F. Ferguson, XI, which pleased us a lot. Here is what he says: "Last month I was scheduled to give a talk on the Moline, Ill., public water supply situation before the combined University Clubs of Moline and Rock Island, and I was very agreeably surprised to find Greenleaf present. We told each other that we would attend the 20-year reunion and time alone will tell whether our words are as good as our bonds. Permit me to express our appreciation of the efforts you secretaries are making to get class news in The Technology Review." As stated in this column, Ferguson is Chief Sanitary Engineer of the State Department of Public Health at Springfield, Ill.

At the Chemical Exposition in New York, we ran across Bates Torrey, XI, down from Syracuse to look over the Show. Bates is still with Solvay Process Company and is looking forward to attending our 20-year reunion next summer. — Bob Wiseman, VI, with Mrs. Wiseman has been doing the Pacific Coast again. This is about his third or fourth trip out there. Some of us who think we are 'way out West when we get as far as Chicago rather envy him. Couldn't you find us a traveling job on the Okonite staff somewhere, Bob?

A little gathering of the New York contingent took place at the Technology Club one night in May. Present: Ernest Nicholson, I, Charles Gabriel, X, Norwood Hall, VI, Albert Albee, I, Harold Brackett, VI, David McGrath, I. Supper, followed by a little game of "deuces wild," was about the extent of the program, except for informal discussion of Reunion prospects. Notes were received from several who wanted to attend but couldn't. Eric Kebbon, IV, sent word he would be out of town, but hoped we would have a luncheon meeting some day when he could come. We will! William Lange, I, wrote that our date conflicted with the Board of Education meeting (New Rochelle, N. Y.) which he had to attend. Malcolm Priest, I, also told us he would be out of town that night. Several others phoned us.

On the evening of May 11, Professor Erwin H. Schell, Head of the Department of Business and Engineering Administration, represented the Institute at a Technology Club (of New York) Seminar. Page Golson, VI, was there with your Assistant Secretary. Page has a very special interest in Course XV because he has had a son there in the freshman class this past year. When questions from the floor were solicited Page asked Schell how in Tophet he could fix it so the son could "pass" the course. But the Professor had a pat answer for that one, too. At this writing, we don't know whether Golson, Jr., has "passed" or not, but we hope for the best. — It is with deep regret that we announce the death of Arthur M. Coleman, VI, on March 12, 1931, at Cleveland, Ohio.

Word has just been received that Wladimir Wanjukoff is now located at the Siberian Institute of Technology, Tomsk, Siberia, and a request for more details as to his activities has been forwarded him. We hope to include this in an early issue.

Don't forget that we shall be looking for everyone to turn out for the Reunion just a year away. — FREDERICK J. SHEPARD, JR., *Secretary*, 125 Walnut Street, Watertown, Mass. DAVID J. MCGRATH, *Assistant Secretary*, McGraw Hill Publishing Co., Inc., 10th Avenue and 36th Street, New York, N. Y.

1913

The Annual Open House of the Institute did not bring out many classmates; at least only two were seen about the buildings. Jim Russell and Bill Brewster were on hand escorting friends and families through the labs and other sections of interest.

A very pleasant note of thanks came from Mrs. Neva Ready Baine for the piece of silver sent by the class as a wedding present. — The Pittsburgh *Sun-Telegraph* carried brief note regarding Westinghouse employees. Among the two mentioned foremost was J. B. McNeil. He has been promoted to general manager of the distribution department, dealing with switchboards, relays, lightning arresters, and so on, from the engineering standpoint.

Joe MacKinnon, the Institute's registrar, reports a pleasant trip to Buffalo, attending a convention of college registrars. Joe, by the way, is Treasurer of that august body. He spoke at the all-alumni meeting there but found no classmates. Other details are missing. — Ben Munch gets into print occasionally, perhaps rather unwontedly. He was a member of the ill-fated Kaufman hunting party last fall. Ben is President of the Atwater Manufacturing Company of Plantsville, Conn., and lives with Mrs.

1913 Continued

Munch and one daughter in Hartford. Two golf clubs must keep his spare time well used.

About the only member of the class who has gone into public school teaching is B. L. Cushing. Formerly at Rindge Technical High School, he is now head of the Science Department at Mechanic Arts High School. He still lives in Rockland. Cushing, Jr., expects to be a member of the class of 1942.

Still speaking of schools, Clint Pearce is professor of Machine Design at the Kansas State Agricultural College at Manhattan, Kan. He has written a book and has done all that professors are supposed to do. — Ben Tremere, formerly in the Mining Department at the Institute, has been at the Palmer, Mass., Laboratory of the Wickwire Spencer Steel Company. Metallography and analysis are his specialties.

P. V. Kelly, formerly of Lawrence, Mass., has become a naturalized southern gentlemen. For the past few years Birmingham, Ala., has been his home, and now he is southern sales manager for the Blaw-Knox Company, manufacturers of contractor's equipment. Two children and Mrs. Kelly make up the family. He admits that golf is only an affliction with him. Perhaps when P. V. sees this he will loosen up and give us real news of the south.

Not much news from Gil Pardey since Westinghouse moved him from Boston to New York. His only remark has been "vote wet on every opportunity." — From the west coast comes word that Silas Champlin is in the vegetable canning industry at San Francisco. He is in research work, particularly with reference to asparagus canning for the Golden State Asparagus Company. He lives in San Leandro. — GEORGE P. CAPEN, *Secretary*, 50 Beaumont Street, Canton, Mass. ARTHUR L. TOWNSEND, *Assistant Secretary*, Room 3-435, M. I. T., Cambridge, Mass.

1914

In reminiscing over the events of the past year, the group that stands out most prominently is the series of seven monthly luncheons held at the Engineers Club in Boston. These luncheons started November 5 and continued on the first Wednesday of each month through May 6. While our average attendance was just under a dozen, we had throughout the year a true representation of the Class located in the Boston district. At all except the March 4 luncheon, we had an informal discussion on some general subject of interest. Corney told us of the new hydro-electric development on the upper Connecticut that supplies power to the Boston Edison Company; Gazarian intrigued us with the story of sausage making; Jimmie Judge presented an interesting description of the difficulties of the paper converter industry; Dean Fales expounded his ideas of the new, so-called fifty-fifty, outside activity work of professors on the Institute staff; Ahern described a recent trip to Los Angeles, and in deference to our good friends in that city, some of Frank's comments should be deleted from the report. The March 4 meeting was our fellowship meeting and was without a speaker.

We plan to resume these luncheons again next fall, and hope that every '14 man in the vicinity of Boston will try to attend as many of them as possible, and that any visiting classmates will make an effort to be present. During the past year there were present at one or more of these luncheons: Ambler, Atwood, Ahern, Blakeley, Crowell, Crocker, Corney, Fales, Gazarian, Horton, Judge, MacKenzie, Morrison, Stump, Stanyan, H. D. Swift, Sherman, Tallman, Trufant, H. S. Wilkins, C. H. Wilkins, our honorary member, William Jackson, and your Secretary.

The only other social gathering of the year was the All-Technology dinner, when, as reported in a previous issue, '14 continued to distinguish itself by going against the general trend. We had a larger attendance than at any recent year, and we are proud of our accomplishment.

Our vital statistics during the past year are conspicuous by their absence. Not a single marriage was recorded, and but a single engagement, that of Howard C. Sampson to Ruth H. Smith. The births of but a single son and a single daughter were reported, the former to Oliver C. Hall and the latter to Donald Dixon. Certainly there must have been more vital statistics to report, and it is only due to the lethargy, or perhaps the modesty, of '14 men that our data is so lacking.

During the past year our President, Buck Dorrance, has been advanced to the Presidency of the Campbell Soup Company, which, with his numerous directorships in banks and railroads, makes him easily the outstanding executive of our Class.

Francis C. Atwood has not only been elected to the Presidency of the New England Paint and Varnish Production Club, but more recently was elected as Vice-President of the Federation of Paint and Varnish Clubs, a nation-wide organization. Atwood is the guiding genius behind the chemical developments of the Craftex Company. — To Dr. Edward C. Wente, who has done such conspicuous work in acoustics at the Bell Telephone Laboratories, has gone the award by the Committee on Sciences and Arts of the Franklin Institute of the John Price Wetherill medal for his contributions to the design and construction of condenser transmitters.

In recognition of his work in the Gendarmerie of Haiti, the President of Haiti decorated Captain Lucian W. Burnham of the Marine Corps. — H. S. Wilkins has been elected a member of the Executive Committee of the Technology Alumni Association. Wilkins has given freely of his time to Institute activities, particularly those pertaining to undergraduate athletic supervision. — With all of the medals and all of the honors that have gone to members of the Class, no national recognition has exceeded the tributes that are continually paid to Porter Adams. Fighting, as he has been, for his health, suffering a set-back from pneumonia, he has continued to give freely and brilliantly every ounce of his energy to the cause of aeronautics.

Word comes from Honolulu that Porter Adams' buddy at Technology, Donald W. Douglas, who since graduation has become a world-renowned figure in aeronautics, has been visiting there, and while on this visit gave a talk before the Engineering Association of Hawaii on the subject of "New Developments in Aeronautics." — Another of our classmates who has gone to Hawaii is Captain Alden Waitt of the Chemical Warfare Service. Alden has been transferred from Headquarters in Washington to Schofield Barracks, near Honolulu. The trip was made by transport down the east coast, through the Panama Canal, and thence across the Pacific. As the trip was long, a daily paper was published to relieve the monotony, and as you have already guessed, Alden was Editor-in-Chief. Alden wrote that he made the trip in fine style, and although a month at sea, he was only sick two days, but on those two days he writes, "I was a sick pup." He further indicates that after seven years at the swivel chair, he will now have to do some real soldiering. Knowing Alden, we do not worry at all about his being overworked, that is, provided he has enough assistance.

Patents numbers 1,803,453-4 have just been issued to Herman A. Affel, covering a system for communicating with moving vehicles. This is essentially a telephone system intended to make possible communication with moving trains. — HAROLD B. RICHMOND, *Secretary*, 30 Swan Road, Winchester, Mass. GEORGE K. PERLEY, *Assistant Secretary*, 21 Vista Way, Port Washington, N. Y.

1915

From Berlin, N. H., Mr. and Mrs. Douglas H. McMurtrie, X, announce the birth of their fifth child, Richard Lempereur, on February 12, 1931. To Doug and the lady go our heartiest and sincerest congratulations with the hope that their son eventually takes good Course X. Unless I am mistaken, and I usually am, Doug can boast the largest family in the Class for which there should be some reward (from the Class) if any.

The response to our class dues has been disappointing. There are still about 50% of the men who paid two years ago who have not yet paid. I urge those fellows particularly and all you others who can to send me in your checks, — only $2.00 and it will keep our small class fund alive. Just one final please to you all.

The long distance prizes go to: Harvey Daniels, I, who writes from Yokohama: "Herewith the $2.00 — more power to you! Am back at the old grind again after a most pleasant five months' holiday in U. S. A., the beginnings of which were that 1915 Reunion at Marblehead. Don't forget to tell any class globe trotters that I'm in Yokohama and will consider it an unforgivable slight if they don't let me know they are coming or at least look me up when here."

1915 Continued

Doug Baker, VI, writes from London: "Enclosed is a cheque for $2.00 in response to your moving appeal for funds. There is no news I can report as I am still here on the same job and am managing to keep fairly busy." — Ken Boynton, VI, sent his check from Mexico City. Yes, and old Dave Hughes contributed from out on the coast. To George Whitewell, XIV, go our congratulations and best wishes for success in the new position to which he has been promoted. George writes: "Enclosed please find my check which I am more than glad to send. About the only news that might be of interest to you regarding myself is that right at the present time I am in the act of leaving Pittsburgh to take up my residence in Philadelphia. After April 1, I shall be Vice-President in Charge of Sales of the Philadelphia Electric Company. You may want to change my address on your records. It will be: 1000 Chestnut Street, Philadelphia, Pa."

Jack Dalton, II, was kind enough to send me the following report on the '15 men at the Alumni Dinner at the Boston Statler: "There were present at the Alumni Dinner on February 28 the following: Art Nelson, Fiske Jones, Horatio Brown, George Moulton and myself (all with ladies) and Herb Swift by himself. Mrs. Dalton and I certainly enjoyed the party very much and there was plenty of evidence that the others did also. Some movies taken by Herb were among the features of the evening in the exhibit prepared by Horace Ford." Apparently those were the same movies with which Herb entertained us at our Boston Class Dinner.

If any of you are in Boston this summer and will phone me at my house, Commonwealth 7848, I shall be glad to see you and will try to arrange for you to see some of the boys who are in and around Boston. — AZEL W. MACK, *Secretary*, 379 Marlboro Street, Boston, Mass.

1916

Another pre-reunion get-together was held by the Boston gang at the University Club on Saturday evening, May 9. Several men were present who were unable to attend the previous party at Harold Whitney's.

Joe Meigs is now located in New York with Bohleber and Ledbetter, 15 Park Row. He writes: "I very much regret that pressure of work early in June will probably make it impossible for me to attend the Reunion. As my letter head indicates, I am now a patent attorney, although for a number of years after graduation I was a research chemist and chemical engineer. I certainly hope that I may attend the next Reunion." — E. P. Johnson writes as follows from Monroe, La.: "Just got your letter about the Reunion in June. No use — these reunions never seem to come when I'm near New England, nor at the time of the year when I can get away to come. For some time now I've been Assistant Sanitary Engineer with the Louisiana State Board of Health, engaged in directing malaria control work in the state. June is, naturally, the very time of the year when we are busiest and there isn't a chance of getting away. Sorry, for I'd sure like to see some of the gang. It's been long since I've seen a '16 man, and in fact I've only seen one Technology man, U. C. Estes '28, in a long time. Tell the bunch 'howdy' for me, and if any of them ever get down to Monroe, be sure to drop in on us and meet the wife and family."

J. H. Murdough is now a professor in the Department of Civil Engineering at Texas Technological College. His regrets follow: "I received your form letter and am sorry to say that I shall not be able to attend the Reunion. I surely would like to throw my hat in as a candidate for the one coming from the longest distance. I have been down here for the last six years trying to do my part in the development of this new college. I very seldom see any Technology men, although I understand that Paul Duff and Kem Dean are over in Dallas, which is only about 360 miles from here — not far as Texas distances go. My family is still the same and has been for quite a while. My boy is getting to be about as big as I am, which, if you remember me, is not very big, but as he is only eight, I am not worried about that."

Flipp Fleming is still with the Goodyear Company at Akron. He moans: "It does not seem like any time since we graduated, but at the same time 15 years have gone by. Time certainly does fly and the older and busier you get the faster it seems to fly. There is nothing I would rather do than be in a position to attend this Fifteenth Reunion, but at this time there doesn't seem to be a chance of my being there. . . ."

Joe Barker also regrets: "I am very sorry indeed that my plans for this summer will not permit me to attend the Fifteenth Reunion of our Class. I have to sail on June 13 to represent the University at several international congresses in Europe and with the rush of the final end of a school year, taking the children to our New Hampshire house for the summer, packing up for four months in Europe, it will take up every moment of our available time after Commencement on the second of June. . . ."

The following newsy letter was most appreciated from Harold Dodge: "Count me as for the Reunion — I'm scheduled to be in Chicago either the first or second week of June. The years certainly roll by and reunions seem to come closer together than quizzes in the old days. For ten years I have been with the Bell Telephone Laboratories, and for n-6 have been heading up a branch of Inspection Engineering, relating to the economic side of applying the scientific method to inspection work. Just a year ago, I had the fun of sharing 50% of the honors in running a two-day Colloquium on the 'Philosophy of Inspection' under the friendly guidance of Course VI at the Institute. . . . I ran up against J. R. Freeman in an A.S.T.M. meeting in Atlantic City last summer. B. A. Clarke frequently tells me how not to publish things in the Laboratories. Ekdahl, I keep in constant touch with, though his Tsingtao home in China is not exactly in my neighborhood. Then, of course, everyone around New York hears things about and sees Joe Barker with his new Dean of Engineering insignia from Columbia. — Mills lives two doors away and his three youngsters and my two swap broken toys and chewing gum. . . . The last I saw of Bill Knieszner in New York, he was making it easy for anyone to patent such things as golf-ball cleansers and airplane tail spins. Earl Mellen still stands forth as Treasurer of the Weston Electrical Instrument Company and his face was among those present at the recent Electrical Engineering Seminar at the Technology Club. — Strieby is at the Bell Laboratories and daily rides the dashing waves by ferry from New York to Hoboken. Outside of business activities, my latest interests are wedded to a new Planning Board for planning the future of our little community."

Irving McDaniels has just received preliminary orders to New York City and expects to be back in the U. S. A. sometime in July, unfortunately, just too late for Reunion. He recently sent me a newspaper clipping which showed himself as one of the winners in the Navy Doubles Tennis Championship. Mac is certainly a versatile man. — It was a great pleasure to receive the wedding announcement of Jeff Gfroerer, which took place on April 2 at Wiesbaden, Germany. The bride was Miss Fannie Palmer. They will be at home after May 10 at 5 Mozart Strasse, Wiesbaden. — E. C. Carston announces the arrival of a new son, William Wraith, born on March 12.

George Repetti has just recently been elected Vice-President of the Holly Sugar Company at Stockton, Calif. — Ed Macy has just been appointed Executive Director of the Brooklyn Children's Aid Society. — Miss Elizabeth Pattee recently gave a most interesting talk on "Accents in the Garden" at a Portland (Ore.) Garden Club. — HENRY B. SHEPARD, *Secretary*, 269 Highland Street, West Newton, Mass. CHARLES W. LOOMIS, *Assistant Secretary*, 7338 Woodward Avenue, Detroit, Mich.

1917

Win Swain reports major contributions to the work of the medical profession at Johns Hopkins. He has undergone a thorough overhauling there and is now back on the job in New York with more enthusiasm than ever. He is still in the financial field making reports on the investment possibilities of various companies. He is associated with J. Henry Schroder Banking Corporation. — Stan Dunning added the following brief postscript to a recent note: "Saw Dad Wensell last evening. The same Dad but no news. Also saw Don Tarpley recently. Besides architect-ing, it seems he is quite an equestrian."

Warren Tapley dropped in to say hello and we report that he has been enjoying health, wealth and general prosperity during the last several years. — The U. S. Commerce Department Trade Commissioner to Berlin, James E. Wallis, Jr.,

1917 Continued

has some very interesting comments to make on general business conditions in Germany. Jim will be in this country two or three months at least and is expected to be in Boston during June or July.

Announcement has been made of the marriage of Bill Eddy to Mrs. Elinor H. Duncan. Mrs. Eddy is the daughter of Mr. and Mrs. Henry A. Hoffman of Providence, R. I. — The engagement of Miss Moselle Smallhurst to Walter B. Strong of Forest Hills, L. I., has been announced. Miss Smallhurst is a graduate of Smith. — From J. M. De Bell: "As you know I am getting more and more addicted to organic chemistry which was my weakest subject at Technology; but you also know how fascinating the synthetic resin and plastics game is. This G. E. Works, in 1929 and 1930, produced and molded about 20% of the phenol resin woodflour plastics used in the United States, and the percentage would be higher if it were not for the keen competition furnished by Don Kendall and Don Friend. Even Mac McGrady and you are becoming addicted to plastics, so there may be some hopes of salvaging the Course XV gang yet."

Raymond H. Blanchard has become President of the Kernwood Club of that city. Blanchard has been with the Hood Rubber Company for the last 15 years and is now superintendent. — Neal Tourtellotte has broken into the trade journal pages again, this time with the formation of the Western Steel Products Company, Inc. Here's what the *Pacific Builder and Engineer* has to say in part about the new corporation: "Equipped to manufacture anything of pressed or formed sheet steel or in the steel sash line, the new corporation, employing a force of 20 men and modern machinery costing more than $50,000, is now operating at high speed in their new building at 1420 West Galer St., Seattle." — RAYMOND S. STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass.

1918

The Secretary wishes to express his regrets that he was unable to provide notes for this issue because he has been ill for the past five weeks. — F. ALEXANDER MAGOUN, *Secretary*, Room 5–328, M. I. T., Cambridge, Mass. GRETCHEN A. PALMER, *Assistant Secretary*, 51 Houston Avenue, Milton, Mass.

1920

Please note that your Secretary's home address has been changed from 9 Chandler Road, West Medford, to 7 Dartmouth Street, Winchester, Mass., where he may be reached by mail or telephone, Winchester 2253–W, unless his business keeps on getting worse, in which case please address Overseer of the Poor. The business address is still Walter B. Snow and Staff, Inc., 932 Statler Building, Boston — Telephone, Liberty 0357.

At this writing I can only predict a small but exceedingly élite gathering of '20 men at the Lodge of the Cliff House at Scituate for a week-end of golf and good fellowship. It is expected that such justifiably prominent classmates as Bud Coffren, Ken Akers, Scott Wells, Ted Hobson, Joe Hennessy, Buzz Burroughs, Karl Bean (the newly wed), Al Burke, the Bugbee twins, and possibly some of the slightly more distant members, Dick Gee, Buck Clark, and Johnnie Nash will be on deck, and a good time is most emphatically predicted. This little gathering is the result of a feeling that as good a party as we had at our Tenth last June simply ought not to be put in cold storage for five years. Hence the probability of these small informal gatherings each June until the dim distant Fifteenth.

It is a pleasure to announce the arrival of a baby girl, Margaret Alyn, at the home of Mr. and Mrs. Adin Allen Brown at Chihuahua, Mexico.

I received a welcome call from Freddie Britton the other day. Fred has been in Winchendon, Mass., all these years and he hasn't changed a bit. — Ned Murdough has moved from Newton to Waverly, Harriet Avenue, the third house up on the right if I remember correctly. — I learned that Pierre Labedan is with the Lockwood Carbonic Corporation at 52 Vanderbilt Avenue, New York. — Ed Ryer's present address is 2540 Yorkshire Road, Birmingham, Mich. — Perk Bugbee is moving next month, so if you are in Winchester after reading these notes and stop at 7 Bacon Street, simply take out your transit and point it at the front door and then go round back about 100 yards and you'll find his new house on Sims Road. — I got a glimpse of Mr. and Mrs. James W. Gibson and their two fine, husky youngsters last Sunday. Jim is still the most prominent man in Newton, at least judging by the signs bearing his name on every vacant house lot over there. — Al Burke's fine new home is at 84 Westminster Road, Newton Center.

I have just been looking over an impressive review of the career of our classmate Edward Ellsberg, the man who raised the *S–51* from its grave 130 feet below the surface, as the result of which he was promoted to the rank of Commander in the United States Navy. It was interesting to note that he is considered the foremost expert in the United States, and probably in the world, on deep sea rescue work. Ellsberg is now Chief Engineer of the Tidewater Oil Company at New York and has also turned novelist, his first book "Pigboats" having recently been published. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

1921

As we write these notes, the Tenth Reunion of the Class is just a short way ahead. By the time this reaches you those who were present at the Sheldon House, Pine Orchard, Conn., June 19 to 22, no doubt will have agreed with Chairman Dan Harvey's prediction that our Reunion will be "depression-proof." For those of you who could not be with us, we will endeavor to run all of the stories in our first meeting on these pages next fall.

Announcement is made of the arrival of Juliette Jeanne to Mr. and Mrs. H. C. DeStaebler. Herb, who is with the Aluminum Company of America, 1825 Boatmen's Bank Building, St. Louis, Mo., was responsible for Act G on our Class Day performance, June 9, 1921, entitled "A Father's Advice on Wine, Woman and Song," with Herb as the fond parent and 1921 as the infant! — S. M. Jones put over an act on that same program called "High Tension Gymnastics With 300,000 Volts." Sam, who still plays with volts in the power utilities group of the Ohio Brass Company, Mansfield, Ohio, joined the benedicts last May when he was married to Miss Norma Joy Hopson of Scarsdale, N. Y.

R. E. Beard has been appointed an assistant general superintendent of the combined plants of the Standard Oil Company of Indiana which are located at Casper, Wyoming.

The engagement of Miss Rene Rubin of New York City to Carl M. Cohen has been announced. Following graduation, Carl obtained an LL.B. degree at the Law School of George Washington University and is now an assistant patent attorney with the Radio Corporation at 233 Broadway, New York City. — We received a cryptic post card from E. Randolph Haigh, commenting on his tour of Germany where he reports visiting Herbert Gfroerer '16.

Chris Carven dropped in on us recently to see the two-way television equipment which is in operation between the Bell Telephone Laboratories buildings and the American Tel. & Tel. Building on lower Broadway. Chris continues his architecture with the B. G. Goodhue Associates, 2 West 47th Street, New York City. — Too late for inclusion in our notes last month came the announcement of the John Simon Guggenheim Foundation that one of the two fellowships granted to engineers had been awarded to O. G. C. Dahl, Associate Professor of Power Transmission at the Institute. Otto has recently published, with Ralph Booth '20, a comprehensive article on power system stability for the *General Electric Review*.

A review of our records for the last 12 months reveals quite a number of the Class as authors of note. Dugie Jackson, Jr., now head of the Department of Electrical Engineering, University of Kansas, is a co-author of two books of essays on science and engineering. Metallurgy seems to have received the most attention from our literary-minded with Professor Vic Homerberg publishing a text book and several articles; C. H. Herty, Jr., of the Bureau of Mines, numerous articles and pamphlets; and Gus Kinzel a co-author of a paper — all on metallurgical subjects. Sam Jones was a co-author of an article on electrical power transmission, as was Professor Otto Dahl, and Professor Fred Adams delivered a talk on paper manufacture at one of the trade conventions.

For the statistically minded, we find that in this volume of The Review we have reported four engagements: Lloyd, MacKinnon, Thurber, and Cohen; five marriages: Russell, Smith, Hanley, Jones, and Smithwick; and two births: a daughter to the Haywards and a daughter to the DeStaeblers. — Last fall we reported

1921 Continued

42 at our Ninth Reunion Class Dinner in Boston the previous June, 21 at the outing, and 36 at the banquet which were on the program for the Five-Year Reunion. — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Co., South Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, Bell Telephone Laboratories, Inc., 463 West Street, New York, N. Y.

1922

The power of an individual is limited, that of the total number who together constitute our class is tremendous. It seems that the class power has been sadly dissipated, that of the individuals as scattered units is growing. Is it not possible for us to keep in closer contact during the coming year leading to the Tenth Reunion? Your Secretary hopes so and pledges his limited time and ability to further class interests during the next 12 months. Will you who read this column coöperate?

Of interest to graduates of the Class of '22 is the announcement of the engagement of Miss Mary Paxton Chamberlain to William Carter Roberson of New York City. Miss Chamberlain attended the Warrenton Country School and is a member of the Warrenton and Albemarle County Hunt Clubs. Roberson has been associated for some years with Roosevelt and Son.

Miss Constance Loretta Lawrence of East Orange, N. J., recently became the bride of Thomas D. Tyne of Elizabeth, N. J. — The engagement is announced of Miss Dorothy Cray Wilson to Frederick F. Sweeney of New Haven. Miss Wilson was graduated from schools in West Hartford and from the Cambridge Secretarial School.

And from Bill Cooper: "I have some news which is pretty important to me. On April 6, Mr. and Mrs. E. G. Jones of Huntingdon, Pa., announced the engagement of their daughter, Margaret Ann, to William E. Cooper." — May you all enjoy a thoroughly happy summer. — RAYMOND C. RUNDLETT, *Secretary*, The Curtis Publishing Company, Lincoln Building, 42d Street, New York City.

1923

You will recall I mentioned that John W. Voelcker, VI, had been transferred to the English Electric Company's Bradford Works. — Here's an interesting letter from Earle Sanborn, XIV, written from Chicago in April: "This season I have been working with the Theatre Guild and am at present on the road with 'Elizabeth, the Queen.' For two seasons I was with Florenz Ziegfield in the original 'Show Boat' Company. Last season I was with the New York company of 'Sons O' Guns' with the late Jack Donahue and Lily Damita. I shall be back in New York the first week in June where my permanent address is Studio 324 at 116 West 65th Street, Phone Trafalgar 7-9018. Mail always reaches me there. I should be interested to know of any other Technology men who have taken to the Broadway stage as a profession."

One of our roving reporters, John W. W. Sullivan, III, of Milwaukee, turns in the following report: "During the past three months I have had an eye out for '23 men, but to date I have run across only one of them, Dr. Herman A. Bruson, VI, in Indianapolis last week. Herman was attending the annual spring meeting of the American Chemical Society. I believe he is with the Rohn and Haas Company of Philadelphia. . . .

"Incidentally, Mrs. Sullivan and I wish to announce (rather tardily) the birth of John Alan on January 14, 1931. For the time being his nicknames include 'Tike' after the manner of abbreviating longer words, which the proud father condensed from 'tycoon.' Both Mrs. Sullivan and baby Alan John are getting along splendidly, and the father has also pulled through."

Pete Pennypacker sends in the following clipping from the New York *Times* from which I quote: "East Orange, N. J., March 9. — Incorporation papers filed today for the Calibron Products Company which will manufacture a new type of architect's drawing paper and conduct experimental research by Theodore M. Edison, youngest son of the inventor, and two others, resulted in a published rumor that Mr. Edison had broken with his father and the latter's company. Mr. Edison denied this in a formal statement tonight.

" 'It is true that a small company is being formed for carrying out projects which will not be to the advantage of Thomas A. Edison Industries, Inc., under their present activities,' he said. 'It is by no means the first time a member of the family has helped to organize outside ventures. It does not in any way affect my connection with the Thomas A. Edison Industries.' "

Two other notes from our Assistant Secretary in New York: "Pete Martin, III, is gradually and quietly becoming invaluable to the Edison Company in West Orange. He has a charming wife, whom he met several years ago in France, I believe, and a small baby who runs the ranch. — I had dinner not long ago with another of our quiet and persistent members, who is coming along rapidly. Ever since his graduation, Samuel L. Williams, II, had been affiliated with the Westinghouse Air Brake Company. I am glad to be writing this about him because he has never sent in any notes about himself and I hope he sees this because it will show how futile his modesty is. He is now district engineer of the New York District for this company, which is an imposing and responsible position."

Norman Weiss, III, who is Ore Dressing Expert for the American Smelting and Refining Company at Santa Barbara, Chihuahua, Mexico, writes that from November 25 to April 15 he was under the weather with a bad case of infectious arthritis which stiffened both ankles and knees, but on the latter date he was agreeably surprised to find that he could again walk. Since then he has improved a great deal, so that he is now participating once more in golf and tennis. His family is fine, and his little boy Norman is almost a year old and is walking around. He hopes to get a vacation in the spring of 1932 and make a trip to Boston.

G. E. Danielson, III, was the proud papa of a second daughter born on March 5, in Lima, Peru, where he is stationed as the representative of the Sullivan Machinery Company. The announcement of this event, a copy of which he thoughtfully sent, was one of the cleverest I have recently seen. Limitations of space and the page format of the magazine make it, I regret to say, impractical to reproduce it here in full.

I am informed through a reliable, if roundabout, source that Arthur J. Wilson, XV, is now manager of the Granite Rock Company of Aromas, Calif., a company which makes crushed rock for road building. Wilson has a six-year-old son who, in building roads for his toy trucks, is taking already a commendable interest in his parent's business.

Clippings from Boston and Wilmington, Del., newspapers report that Mr. and Mrs. Edward M. Taylor of the du Pont Biltmore, Wilmington, announce the engagement of their daughter, Virginia Neville Simms, to David M. Houston, X, last April. Dave is with the Hercules Powder Company at Wilmington.

I've had only one response from the suggestion made in the May notes that if a few of you who could spare it would send in $10.00, we'd be able, as a class, to make the customary contribution to Dr. Rowe for the Alumni Athletic Fund. Harry Green, III, in writing to announce the arrival of Michael Edward Green on April 13, sent in a contribution in spite of the fact, he says, that the "stork" market got him. — HORATIO L. BOND, *Secretary*, 31 Concord Avenue, Cambridge, Mass. JAMES A. PENNYPACKER, *Assistant Secretary*, Room 661, 11 Broadway, New York, N. Y.

1924

We learned recently that Henry Gregory Shea is engaged to Evelyn Edwina Wilson of Jersey City. Greg is living in Bronxville and is with the Stock Exchange firm of Frank B. Cahn and Company where he is organizing a bond department. — Edward H. Moll was married in Toledo, Ohio, on April 11 to Miss Irene Carolyn Kuhlman. — Mr. and Mrs. Blanchard D. Warren have announced the birth on March 25 of Blanchard Dominick Warren, Jr. — At this point I should like to inquire if any one in the class knows of the location of the movies which were taken during our Senior Week.

And here is the first of my letters from Jose W. Loubriel who lives at 341 Franklin Avenue, Nutley, N. J. As you will note there is nothing about himself but something of others: "It is with great pleasure that I assume the rôle of reporter for The Review and it is a great joy to be able to start my self-assigned duties by broadcasting with glee the safe arrival of a 100% '24 baby, J. Adalberto, Jr. The happy event took place at 10:30 P.M. on March 8. J. Adalberto, Jr., weighed the

1924 Continued

whole of eight pounds and 2.5 ounces. Both baby and mother are doing well. J. Adalberto, Jr., is the son of Al Roig of Spooky Blues fame and of Saro Ferré, sister of that famous fencing master, Luis Ferré. As you probably know both Al and Luis are Course II men of the glorious Class of '24. This is Roig's second success; the first one, Aileen Mary, is already over a year. Roig is chief engineer in his father's sugar factory located at Humacao, Puerto Rico."

Second in the line of letters are the following excerpts from one of Bill Correale's: "Our regular program in New York, broadly speaking, is to include a luncheon once a month at the Planters Restaurant, Pearl and Hanover Streets, the first Tuesday of the month (these have been discontinued for the summer), a fall dinner, a winter dance with the Classes of '23 and '25, and a spring dinner. We called off the spring dinner this year because the dance came later this year and because of financial conditions. As you know, I am the Chairman of the New York '24 Group, Greg Shea is Vice-Chairman, and Anatole Gruehr is Secretary.

"Bob Spurdle '28 is with Ted Simonton at Hoguet and Neary, Patent Attorneys. — Henry Rau surprised us with a visit at our last luncheon. He is now in the leather business. Fred G. Garrison also dropped in to the last luncheon, having just returned from work in about every place in the world. He is with the I. T. & T. I saw Lank Harris today. He is still with National Surety Company and has a son whose birth I haven't seen announced in The Review.

"There are about six Technology men in the New York Young Republican Club, of which I am now a Vice-President, and amongst them are three '24 men.

"Men are already thinking about a Ten-Year Reunion. Several have already asked me to be sure we go back to Marblehead, and if I have anything to do with it, that's where we will go. Arapakis and Lou Porter will probably both be married men before many more months."

And lastly, I have as the parting shot one of the best and cheeriest letters I have ever received from Bill Robinson. Here it is and then you can agree with me! "Hal Donovan has given me this opportunity to write a short message which will be sent to every member of the Class of '24 — this through the courtesy of the publishers of The Review. Does it seem to you that it was 11 years ago that our crack outfit started at the Institute, and seven years ago when some of us were fortunate enough to inveigle a diploma from the authorities? I hope that in this seven and eleven combination there will be good fortune for you during the year 1931, when the outlook according to some is not so good.

"And speaking of time, the Five-Year Reunion at the Corinthian Yacht Club at Marblehead in 1929 was an outstanding three days in the life of most of us. Only those who were there can appreciate the good time which was enjoyed. The best indication of a good time, however, is that those present are already counting on the Ten-Year Reunion in 1934. Others who have been told about the previous Reunion are planning to redeem themselves, and also share in the fun when 1934 rolls around.

"It has been my good fortune to be able to visit the Institute several times a year. Our old friends in the Administrative Department and on the Faculty are particularly glad to see a representative of the Class of '24. This may be professional interest, but if this 'growing boy' knows anything about it, and judging from the expression in their eyes, their interest in us is genuine, it reflects the record which was made by '24 at the Institute. Let us keep this up.

"I take this opportunity to wish each one of you heaps of luck. I hope that our paths will cross soon, certainly in 1934, if not before." — HAROLD G. DONOVAN, *General Secretary*, 372 West Preston Street, Hartford, Conn.

COURSE II

Dave Davidson, our old basketball star, called me up one evening and Mrs. Davidson, Mrs. Hungerford, Dave and myself had a very enjoyable evening of bridge. Dave has been married about two years and is selling road materials throughout New York State for a subsidiary of the Standard Oil Company of California. — Tom Sawyer is back here in Syracuse again, having been in Chicago for some time. — Nez Thompson is somewhere in Lowell, Mass. He has been married about a year and is still connected with the Parks-Cramer Company.

Bobbie Reid is in the export division of the American Blower Company in New York City. Bob is single, no taller, but much larger around the equator. Bob says that I will have to stop making jest of his figure. — Dick Bushnell is back in Boston again after spending about a year at Hopewell, Va., where Stone and Webster had a large contract in building a plant for the Atmospheric Nitrogen Corporation.

George Anderson, Jr., is with Bucyrus-Erie Company at Milwaukee, where he has been since leaving school. — Mike Cary is down in Richmond, Va., with a public utility and has been married somewhat over a year.

I had a Christmas card from Mr. and Mrs. Homer S. Davis. Homer is living in Brooklyn, but his present activities are not definitely known. — Ray E. Dorr is making leather with the Griess Pflegen Tanning Company, of Peabody, Mass. I believe Ray is the mechanical engineer for the outfit. — Ray S. Hamilton is at the main office of the Linde Air Products Company in New York City.

Ed Hanley is keeping the accounts straight for General Electric at Schenectady. Ed was married about a year ago. — Herbert Moore is teaching the boys at the Institute something about the engine lab. — As for myself, I am still with the Solvay Process Company and will be glad to see any of you when you are in Syracuse. — FRED S. HUNGERFORD, *Secretary*, 1804 West Genesee Street, Syracuse, N. Y.

1925

COURSE II

There are a few old dependables, among them Toni Lauria who has come to bat with an excellent letter from Brazil. He is down there with the Goodyear people and writes that business is rotten and steadily growing worse. Incidentally it has not been previously reported in these columns that Toni was married last year. He can be reached at The Goodyear Tire and Rubber Company, Praca Da Republica, 28, Caixa Postal, 1424, Sao Paulo, Brazil, South America.

At the Alumni dinner at the Statler last February there were present M. S. Blake, IV–2, Hagstrom, II, Hodson, II, Lewis, II, H. F. Smith, II, Jones, II, and Malone, II, and the table was also graced by the presence of Mrs. Hagstrom and the Misses Connell, Crane, and Kelsey. We had an excellent evening and I should not omit reference to the fact that Doc Killian kept the audience very much interested in the demonstrations which he put on.

Blake is a field engineer with the National Fire Protection Association with main office here in Boston. Hagstrom is in business in Gloucester, and Hodson is, I believe, with a power company. Lewis is with the New England Power here in Boston and Smitty is chief engineer and free lance for MacDonald Bros., engineers, of Boston. Jones is in business and is partner of Farrell and Jones at 10 High Street, Boston.

I get a line occasionally from F. K. Anderson who is with the State Highway Department in Illinois. He is married and can be reached at 1664 North 36th Street, East St. Louis, Ill. — Stansfield and Cousins are with the Inspection Department of the Factory Mutual Insurance Companies at Fort Hill Square, Boston, the former as an inspector touring the country, and Cousins is an engineer doing general fire protection work. — Speed Hopkins is occasionally about town, and is with Kidder Peabody. — NELSON D. MALONE, *Secretary*, 226 Warren Street, Fall River, Mass.

1926

This goes to the printer just one week before our quinquennial bust at the Mayflower Inn at Manomet Point, Mass. Jay Goldberg is preparing a special news sheet for the Reunion so it is superfluous to extend these notes at this time.

Winslow H. Russell writes: "On March 21 I was married at Chicago, Ill., to Frances Georgia Swanson of that city. We are now living at 75 Oxford Street, Hartford, Conn. I am research engineer with the Whitlock Coil Pipe Company of Hartford, having been associated with this company since graduation, and for the past year stationed in their Chicago sales office."

There have been two other marriages. Bean Lambert was married to Miss Huldah Justice Williams of Richmond, Va., on May 2. The ushers included George Faithful, Henry C. Hoar, and Ed-

1926 Continued

win Lame. Bean and his wife are at present in Europe on their honeymoon. For some time he has been associated with the Bankers Trust Company of New York. — The second marriage was that of Miss Christine MacKenzie to Harold Willoughby on March 28 at the Little Church Around the Corner in New York City. J. Goldberg is engaged and Dwight Woods reports a son born in February.

We have a clipping describing an address of Stuart John before a weekly meeting of the real estate board of Dallas, Texas. Stuart is a special representative of the Dallas Light and Power Company. — Ernest K. Warburton, a member of the crack Selfridge Field flying corps, was burned seriously when his army airplane exploded 1,000 feet in the air just after he had abandoned it for a parachute jump.

Thornton Owen writes: "I had hoped to attend the reunion this June, but circumstances are such that I will be unable to make it, as I am planning on being married this fall, probably the latter part of September. My engagement to Miss Collett Jeanne Radlebeck of Peoria, Ill., was announced in May. We plan to be married at her home the latter part of September and afterwards we will make our home either in Evanston or Oak Park if I am not transferred by the company in the meantime." — J. RHYNE KILLIAN, JR., *General Secretary*, Room 11-203, M.I.T., Cambridge, Mass.

COURSE VI

Mr. and Mrs. Herbert Andrew Thompson announce the marriage of their daughter, Miriam Ethelyn, to Earl Chatham McMahon on Saturday evening, June 6, at eight o'clock, at the First Congregational Church, Melrose, Mass. Mr. and Mrs. Mac will reside at 4 Glenwood Avenue, East Orange, N. J., and I am sure that they will be very pleased to see any of the gang who might happen to be in the vicinity.

I understand that Howard Lane is back in civilization again after spending the winter in the wilds of northern New York. Howard is one man in particular from whom I would like to hear and I am sure that he would have some mighty interesting notes for The Review.

I just had a very interesting letter from our old friend Bill Edwards, who is hanging his hat at 1333 Pennsylvania Street, Denver, Colo. Bill says: "It's Springtime in the Rockies, meaning out here in Denver, where mountains begin and straw hats and street pajamas (female) are quite in evidence today. Also that well known tired feeling is coming on with the increase in temperature and I long for Wollaston Beach after a tough day at the office.

". . . This is my second year with the Long Lines Plant Department of the A. T. and T. Company here in Denver and the longest I've ever been in one place! Maybe Rhyne Killian told you I spent two years wandering around — a year with the Radiomarine Corporation of America on a trip around the world after a year in the Engineering Department of the R. C. A. in New York City on radio pictures — and finally landed at the University of Oklahoma, where I took a B.S. in Electrical Engineering and got married.

"We went to Galveston, Texas, on our honeymoon and after graduation (June, 1929) came to Colorado Springs to join the Alexander Aircraft Company. I took a 10-hour flying course on the side but before the summer was over the business slumped and Denver being the nearest big city, I came on and joined the A. T. and T. Company. Denver is a fine place to live in and work in, in spite of the adverse political mud-slinging of our local scandal sheets."

Bill goes on to say that Bill, Jr., is now 18 months old and some kid. He figures that he will have to get his mother a baseball bat to tame him with. Guess he's a chip off the old block all right. Thanks for your letter, Bill, and let me hear from you often. I wish some of the other fellows would wake up and shoot in some news for The Review. What do you say we have a little competition? Everybody write in before August 15 even if it is only a card, and tell me where you are and if you are blessed with singleness or children. — RONALD J. MARTIN, *Secretary*, 17 Highland Avenue, Thompsonville, Conn.

1927

COURSE VI-A

Donald and Grew have decided to attempt to put 1927-VI-A back in the news section of The Review. Oscar's sympathy will greatly aid Larry in this work. They have submitted the following:

Acock is in Schenectady but that is about all anyone knows. — Burckes travels considerably for the Transmission Department of Division I, A. T. & T. Company Long Lines, testing cables, carrier loading, and so on. We hear he is undergoing an operation in Boston at present.

Cutts is in the G. E. sales office in New York. Engagement congratulations are in order and wedding bells not far removed. Good luck! — Donald is in the A. T. & T. Company district office in New Haven worrying about transmission in Connecticut. Week-ends are spent in New York or Peekskill — it's the same person either place. Lives with Grew, who calculates the effect of power lines on telephone circuits in Connecticut for the Southern New England Telephone Company. Noise, crosstalk, and special investigations induce sleeplessness on occasion. Engaged!

Grierson solves difficult problems for the Bell Labs. — Hammond is in El Paso with the Utility Company. Even the beer in Mexico can't keep him from yearning for a sight of Boston. — Harrington lives in New York and works for the Western Electric Company at Kearny. A five-day week now regulates his activities.

Leach works on the mechanical design of radio transmitters for the G. E. in Schenectady. A car and a 35–40 m. p. h. motor boat constitute his accessories, the latter because all women can't swim. — MacCarroll is a sound technician with Paramount Publix in Hollywood. — Mott, who married Miss Roberts of E. E. Headquarters, lives in Montclair and works in Bell Labs.

Muchnic, we hear, is assisting a Harvard Business School professor in compiling a book. — Peters finished at Harvard and is in the commercial engineering office of the N. Y. Edison Company. — Rudge is married. His interest centers around the lightning arrester department of the G. E. in Pittsfield. — Smith checks Penn. R. R. power purchases from utility companies. He will design a substation for you or carry out a special investigation. Philadelphia is his business headquarters; Bristol, Conn., for his real social interest.

Snediker regulates Transatlantic and Ship-to-Shore conversations in conjunction with D. D. Donald (1925). They are the Mainstays of the Maritime Division of Long Lines. — Talbot is at present at Yale on a Penn. R. R. scholarship. His thesis, required for his Bachelor of Transportation degree, will show the railroads how to beat the trucks on short haul freight routes.

Tucker was married last year, having Donald as his best man. He can be located in the radio engineering department at Schenectady. — Willcutt is with a power company in Allentown, Pa. He has been seen in Greenwich Village. — Wise has finished Harvard Business, and now lives in Leach's "hotel" in Schenectady. — Woods is in the G. E. Central Station Department. — THATCHER H. MAWSON, *Secretary*, Allied Engineers, Inc., 600 North 18th St., Birmingham, Ala.

1928

Gentlemen, there confronts us this month the tremendous problem of solving the question "Who is the Class Baby?" The answer to this momentous question can be made only after we determine which of the '28 offspring was born the earliest. At the Class Banquet at the University Club a year ago, it was announced that Master Thurston Hartwell, Jr., son of the same, Senior, was born November 11, 1929. Now, however, that honor has been claimed by young Miss Jeanne Ethel MacGillivray, daughter of Mr. and Mrs. Jerry MacGillivray, V. She was born on August 28, 1929. Thus, unless we have an earlier challenger, we must give Miss Jeanne the title of Class Baby and Jeanne's popa claims this distinction belongs to Course V.

Jerry also informs us that his friend Bob Carder, X, is in far away Dutch East Indies. It takes two and a half months to get mail from his present hide-out for some unexplained reason.

Clinton Perkins, V, is reported by his friend Jerry as being a "first-class production man in the organic chemical department of the Roessler Hasslacher Company in Niagara Falls, N. Y. In fact he has stolen all of Course X's 'plumbing' knowledge by installing and perfecting a number of continuous processes up there."

1928 Continued

A recent Lawrence (Mass.) newspaper announced that Ed Shiepe was co-inventor of a startling new recording device which was used for the first time in taking the confession of a man under arrest in New York for robbery. In the absence of further details of this interesting machine we can only say congratulations.

The engagements of the following '28 men have been announced: Norman S. Gray to Miss Isabella Gilliam Crockford; Edward T. Lockwood to Miss Ann Franklin Hamilton of Brooklyn, N. Y.; Fred E. Russell to Miss Joy Watson of Milton, Mass.; Ralph T. Jope to Miss Florence E. Clayton of Morrisville, Pa.

In addition we are pleased to give the news of three recent marriages: Francis H. Rutherford to Miss Molly Gordon Horr on April 6 at the First Unitarian Church, Cleveland, Ohio; Louis C. Scherer to Miss Eleanor Hammer on May 2 at Miss Hammer's home in Branford, Conn.; James B. Greeley to Mrs. Helen Lyons Powell on March 10 at the Church of the Pilgrims, Brooklyn, N. Y. The bachelor ranks are fast thinning and in Jack Bailey's Course XVI notes, we learn of a few more who have become benedicts. — GEORGE I. CHATFIELD, *General Secretary*, Room 11-203, M. I. T., Cambridge, Mass.

COURSE I

News this month refers, with one exception, to that part of the gang that is in and around New York. But that one exception takes precedence. To Ken Clark is due a round of congratulations. He and Miss Mary Cathryn Sullivan were married on May 3, in (I believe) Chicago.

When Technology crews rowed Columbia on the Harlem here on May 16, Ure, Josephs, Weinberg, Chick Lyons VI-A, Joe Westell '30, and I got together to follow the races, and for the naturally ensuing bull session. Of this gang Weinberg and I are still located as last reported, with the Board of Transportation and the Electric Bond and Share Company, respectively. Ed Ure, however, is now with the Port of New York Authority working on the Hudson River Bridge (now officially at least the George Washington Bridge), and Art Josephs decided he wanted a vacation, so quit Bond and Share and plans to leave here about June 1 to spend the summer in Minnesota.

Now to steal a bit of the Course XI news. I ran into Bill Beard early in May. He was sailing the following day for California via the Panama Canal. As a result of "The American Leviathan," Bill has been offered a position teaching government at the California Institute of Technology and was going out to complete negotiations for the work which will begin next September. Have also seen Klegerman several times recently; Morry seems pretty firmly settled with Alexander Potter at 50 Church Street.

Dropped in for a visit at Morrill's a few days ago. Harold spent the winter on the construction of the new Stone and Webster building at 80 Broad Street. He is now figuring on taking a shot at contracting with another fellow who has spent some time in the building game. Harold holds a firm grip on the title of our leading family man, as he is now the father of two boys, aged (as you read this) about three years and eight months. Morrill tells me that Hurlbut is supervising the maintenance of RCA equipment in the Boston district and is living in Waltham, and that Terry, Jr., is a healthy young giant for his ten months.

Hal Porter has a new job which seems to offer excellent opportunities with the Quaker Maid Company, a manufacturing subsidiary of the A. & P. stores. The job deals with sales statistics, working into sales promotion. Incidentally, Hal and I are still living together and can be reached at the address appearing at the end of these notes.

George Mangurian's most recent work has got him into wing design on a new all-metal ship. I last saw him while he was en route to Philadelphia to witness some tests at the Naval Aircraft Factory. Sticking to aviation for a moment, Shipley is still an active pilot and, as I write this, he is probably in Chicago doing his part in the Army air manoeuvers.

After Topping returned from Venezuela last summer he worked for several months for the Public Works Engineering Corporation, then early this year shifted to the office of a firm of consulting engineers. When I last saw him he had just been given an assignment in Dobbs Ferry, N. Y. — This closes a third year of notes. Let's hear from some of the more mysterious of you. — GEORGE P. PALO, *Secretary*, 1095 Jerome Avenue, New York, N. Y.

COURSE XVI

Quoting Doug Tooley: "I don't know much about where the boys are now except that Leslie is probably in Miami with Pan-American. Dick Buzby, wife, and son went to Buffalo with the Curtiss outfit when they moved. I don't know whether Walton went or not. Louis Miller, of course, is in San Antonio learning to make three-point landings. (I don't know whether Doug means three point-landings, or three-point landings, but I think three of the first would be enough.) I had a card from him immediately after he arrived, but he gave me no address (how considerate!). You should notice that The Review has never heard of the arrival of Cary Bailey, or of Richard Bruce Buzby, or of the very important wedding which took place in Medford a year ago."

Yes, young Richard Bruce Buzby is our first course baby and though I haven't heard from his Daddy in some time, he was doing fine then. And Miss Cary Cecille Bailey is the second baby in the course and I can testify that she is doing her best. — In so far as I know, there are only the three of us, Doug, Dick and myself who are married, but I do know that there were yearnings in other quarters. — Alex Tsongas is telling the St. Louis branch of the Curtiss outfit how strong things ought to be and then he has the nerve to send the stuff down to the department for approval! — JOHN P. BAILEY, *Secretary*, Engineering Section, Aeronautics Branch, Department of Commerce, Washington, D. C.

1929

Brig Allen writes that Ted Ewald, XV, and Charlie Denny, XV, staged a get-together in Pittsburgh over Washington's birthday and though their telegram to him announced that it would have been worth his life to have been on hand, he could not make it. Brig also ran into Ed Powley, IX-B, and learned that he finally graduated last June with all kinds of honors, but that his old playmate, Art Marlowe, who many of us remember as the big bad man from the west, is finishing up this June unless he can help it.

We also hear through Brig that Virgil McDaniel, XV, called him up the other night, but he wants Mac to know that since it was Saturday he was probably at the Symphony Concert. He adds, too, Mac, that he tried to call you back later in the evening, but that you were probably already on a sleeper and headed for Boston. Another man that Brig has run into in his travels is Emil O'Neil, ex-'29, who is down in York, Pa., resting at the York Ice Machinery Company and who made a trip into Pittsburgh the other week-end so that he could spend the 40 cents he made during the month.

Brig is still in the sales engineering department of the Reliance Electric and Engineering Company, but he is expecting a new assignment. There is a new man coming into the Philadelphia office to take over most of his accounts around Philadelphia. Brig then intends to concentrate on the southern part of his company's territory, Maryland, Virginia, and so on, and will gradually spend more and more of his time down in Baltimore, Washington, and Richmond. He adds that his acquaintance with classmates in this district is small and he would like to look up any who are down there. He does know that Doc Larkin, ex-'29, is at Johns Hopkins in Baltimore doing graduate work and that he may return to Technology to get his doctor's degree.

Joel Whitney, II, after a long silence, crashes through with the announcement that he and a certain Southern young lady named Mary Daniel are announcing their engagement soon and will be married late in June. Joel was best man at my wedding and I'm only filled with regret that I can't get my vacation at the right time to journey down to Old Hickory, Tenn., where they will live, for the ceremony. Joel was with du Pont Rayon in Old Hickory, but has been with du Pont Cellophane since a year ago when a severe slump hit the Rayon business. After the transfer, however, he had to start all over again on another year's training course after just completing one with Rayon. He adds that it has meant hard work, but that it is a very fascinating product. We all join in congratulating Joel and wishing him and his fiancée much health and happiness.

Now to congratulate Gordon Williams, Course I Secretary, on his marriage in March to Miss Olive MacLean and to

1929 Continued

wish them much happiness. — A June wedding is planned for Larry Newman, I, and Miss Eleanor Jarvis of Needham, Mass. Congratulations and best wishes are extended from all the Class. Larry is in New Haven with the Southern New England Company.

The engagement of William S. Tyler, 3rd, VI, to Miss Elizabeth Fisk of Plainfield, N. J., was announced April 5 in the Boston *Post*. — Another similar announcement was published in the New York *Times* of March 22 concerning the engagement of Milton Male IV-A, and Miss Maxine Rothschild of New York. — On April 1, the engagement of George A. Eddy, 3rd, VI, to Miss Dorita Fisher of Manchester-by-the-Sea was announced in the Boston *Transcript*. The wedding will be in June and they will live in Schenectady, where George is in business.

From Worcester, Mass., comes the news that Robert S. Riley, XVI, is engaged to Miss Katherine Wethered Lilly of Baltimore. Bob is located at Hartford where he is connected with the Pratt and Whitney Aircraft Company. He graduated from the Kelley Field Army Air Corps Flying School in 1930. — The engagement of Newell W. Mitchell, V, to Miss Bertha Grossman of Waterbury, Conn., was announced March 25. Mitchell is associated with the Research Department of the Chase Companies of Waterbury.

Brock Brockelman, XV, and Miss Estelle Taylor of Harrison, N. Y., were married April 27 at the Taylor home. They will reside in Worcester, Mass., where Bernie is in business with his father. — Mal Seavey, IV, and Miss Miriam MacDonald of Quincy, Mass., are engaged according to the Boston *Transcript* of May 2. — The engagement of Frank Pierson, XV, to Miss Florence Morrison of Brooklyn, N. Y., was announced on May 7. Pierson is now in Manhattan and associated with the International Paper Company. — EARL W. GLEN, *General Secretary*, 415 Hillwood Drive, Akron, Ohio.

COURSE I

The Secretary only recently learned that Pat Patino was married last June before sailing for home, and that Jake Jacobs was married last July. — The Secretary was married in March to Miss Olive MacLean.

Ham Williams went to California in April. — Link Reid was seen around Boston this spring. He has been working on the Cobble Mountain reservoir project near Springfield, Mass. — Anthony Perry and Hap Adkins are in Denver, working for the U. S. Bureau of Reclamation. Hap is employed on the Hoover Dam project and it is presumed that Perry is on the same job.

The Secretary's home address will be 1699 Cambridge Street, Cambridge, Mass., until about September 1. The address given below is his office address and is to be considered the permanent one. Please send in some news to help fill our column in the next issue. — GORDON R. WILLIAMS, *Secretary*, 2500 Custom House Building, Boston, Mass.

COURSE X

Jim Hogan has written us a long and interesting letter concerning the activities of several of our classmates. Jim says: "What more worthy cause could there be than disseminating the news that I have? Dick Johnson, as you probably knew, stayed at Technology as Robby's assistant and next year, I understand, he will be working for Mac. Also rumor hath it that Dick wants people to bow low before him some day obsequiously murmuring 'Doctor, Doctor.'

"Kennerie Scott, who had the job with Robby the year before, has been taking the practice school work in X-A. Since Christmas, he has been back at the Institute working in the R. L. A. C. and simultaneously doing his thesis. He expects to get his Master's this June. Dick Does and Volante are still in the lab. where they have been since '29.

"Bill Jones last year found time in between saxophone toots to work for Mac, the year after graduation, but after putting in the summer at the Arnold Print Works in North Adams (if this is wrong let him rise in his wrath and correct me) he decided the call of industry was too strong and didn't return to Technology.

"Dick Roberts and Ace Vernon, after X-A, started in at the du Pont experimental station at Wilmington. Vernon was married either the day before or the day after the Institute told him he was Master. It also seems to me that I heard Dick was taking the same step.

"Of the X-B gang I have not heard so much. Jeff McGrath is still with the Merrimac Chemical Company at Everett and has to his delight been shifted from the drawing board to plant control work. Ev Weatherly is working for the Humble Oil Company in Texas. — Durand Churchill has or had some affiliation with one of the companies connected with the Standard Oil of New Jersey. I understand that he is living in New York now and has a perfectly good car for sale in Baton Rouge.

"Derry is reported to be right on the verge of matrimony to a Buffalo-ite or would-be Buffalo-itess. Len Stievater was, when last heard from, puzzling his head over the intricacies of gas analysis somewhere in New York State. Sid Hardwick went to Salt Lake City with a smelting company.

"Mike Altieri has left Dennison's but where he went I dinna ken. Bose stayed around a year and picked up his Master's degree. Eugene Koo is now running his Doctor's thesis — velocity distributions in a pipe. Bill Aldrich XV-3 was heard from some time ago as being in the process of dog swapping in Montana. Bun Brockelman is now in the bakery business at Worcester which is no news, but the dope that he is about to leave the merry bachelors may be." — Jim Hogan is still in Boston and expects to be Fred Adams' assistant at the X-A station in Winchester next year.

Al Williams writes: "I'll take a chance on boring you and give you a little idea of my work and life here in Berlin, N. H. The work is almost entirely on artificial leather. I've been at it ever since I arrived. I had always thought that research would not be to my liking but the time that I've spent at it so far has been most interesting. . . . Jim Yates is right here (Brown Paper Company) and I see him quite often. He seems to be enjoying life and work here." — LAURENCE T. TUFTS, *Secretary*, 178 Alameda Street, Rochester, N. Y.

1930

I must confess that it is partly my fault that no notes have been printed of late but an important reorganization of this "office" in the near future makes me feel that hereafter the Class of '30 notes will appear more regularly. Miss Eleanor Balentine of Boston has consented to give her services to the Class, free of charge in the capacity of permanent secretary to your Secretary. The big event is to take place June 13, in Salem. Jack Bennett is to be best man while Phil Holt, Charlie Flint, and Wally McDowell, all of '30 are to be ushers. After July 1 we will be at home at the Roosevelt Apts., Rahway, N. J.

One or two of our classmates have actually written in to tell us some of the news about themselves and about their friends. Horace Preble writes from 242 Broad Street, Newark, N. J., to inform us that he was married last July, but he fails to tell us who the lucky girl is. He is working for the Congoleum-Nairn people in Kearny, N. J. His letter also contained the following information regarding a few of our classmates who are working in or around New Jersey. Ed Hawkins and Bill Howard are working and living in Passaic, N. J., with a construction concern. — Joe Devorss is also in Passaic doing factory service work for the U. S. Rubber Company. George Wyman is in charge of the control laboratory of the Lithopone Plant of the New Jersey Zinc Company in Palmerton, Pa. Bob Crowell and Ralph Appleton are living together in Jersey City. Bob is with the American Can Company. — Hal Brown is another Passaic Booster. He is working with the deForrest Radio Corporation and is living in Montclair. — Jim Leighton is working in Cleveland for the American Gas Association testing laboratories. Jimmie has also joined the ball and chain gang, but again we cannot supply the name of the better half.

Another letter writer is Hal Spaans who is working with the Bell Telephone of Pennsylvania in Philadelphia. Hal writes that due to a short vacation at Christmas time he was able to have a reunion in Boston with Hank Halberg and Jack Vennard. Jack and Hank are working in Akron, Ohio, attempting to learn what makes a zeppelin stay together. — Just to prove that the good old Institute doesn't kill everything in the way of culture in a man's makeup, Morris Shaffer of our Class has been elected Rhodes Scholar from Massachusetts.

Ducky Drake was married on December 12 to Miss Gladys Heeley of Marlboro, Mass. — Webster Fisher was married on

1930 Continued

December 27 to Miss Mary E. Crandall. Dick Hartwell was best man. Mr. and Mrs. Fisher are at home at 193 Augustine Street, Rochester, N. Y.—The engagement of Thursty Ramsey to Miss Edna Niven of Haddonfield, N. J., has been announced.

It is with regret that the Secretary announces the death of Harbert W. Gall. On February 8, he was seriously injured when he attempted to land the disabled plane he was flying. He leaped from the plane when he was about 300 feet from the ground but the parachute did not function and after being unconscious for two days, he died on February 10.

Realizing how busy the Secretary is at this particular time, Jack Lennett offered to help furnish some '30 notes and sent in the following:

We had great news out here in Akron not long ago. Fluque Rowzee, Jim Holden, Phil Holt, and Ted Riehl are coming out here next year to help the rest of us turn out more and (if possible) better tires for Goodyear.

John Guinan, who is with the Brooklyn Edison Company and is now on an assignment up in Cleveland, dropped down last Saturday afternoon. Gus Klumpp was expected too, but it rained slightly and Gus was afraid of getting the mudguards of his new red Chevrolet rusty, so stayed away. Gus is over in Youngstown now, steam engineering with the Carnegie Steel Company.

I had a long talk with Dan McDaniels last week and learned a little of the latest gossip from Cambridge. Dan, who is partly Class of '29 and partly '30, is looking after the Multibestos Brake Lining sales in the field and has just finished in our fair state of Ohio. He stopped here on his way back to the home office at the Dewey and Almy Chemical Company in North Cambridge. — Any lonely wanderer in New York City can get some encouragement by calling up Wally McDowell. He's still his old cheerful self, and is working with the International Business Machine Company there in the city. — MORRELL MAREAN, *General Secretary*, Apt. B-7, Roosevelt Apts., Rahway, N. J.

COURSE I

Jim Muir wrote me some time ago, and I have the pleasure to relay his words: "I have been working since last July in the Boston office of the Flintkote Company. Most of my time has been spent with Flintkote Roads, Inc., a subsidiary of the aforementioned company. Flintkote Roads manufactures and markets an asphalt emulsion for roadway construction and maintenance named 'Colas.' I have thus far spent the major part of my time in the office doing routine work and learning the inside end of the business. I have, as yet, had no experience in the manufacturing end of the business, our factories being in Rutherford, N. J., and New Orleans, La., but I have on several occasions acted in the capacity of a construction foreman on a few roadway, driveway, and tennis court construction jobs. Occasionally, I get over to our New York offices, but I have always been unsuccessful in my attempts to get in touch with some of my classmates located in that city. I ran into Sumner Fuller several weeks ago in the Park Square Building, where both of our offices are located. We have lunch together occasionally and have much in common to talk about, inasmuch as he is working in the road asphalt division of the Standard Oil Company. Occasionally I attend Reserve Officers' Meetings at the University Club and have an opportunity to talk over old times with Ray Rolin, Ed Kingsley, Arnie Ackiss, Dick Foster, Al Perkins, Ed Roche '29, Gordon Williams '29, De Fabritis '29, and Dr. Gilboy." Letters will find Jim at 435 Cambridge Street, Allston, Mass.

Juel Lensch is with the Upper Mississippi Valley Division, Corps of Engineers, U. S. Army, with offices in St. Louis. He expounds in this manner: "After graduation I drove to my home in Portland, Ore., and had spent but a few days there when I was called back two thirds the distance I had just traveled. Perhaps at some future date I shall have an opportunity of spending a little more time in the far west where, as is often told, 'men are men and the plumbing is outside.' On the first day introductions revealed that there were already three Tech graduates in the office. They were Hap Adkins and Fred Ricks, both of whom were Junior engineers, and Mr. L. Ylvisaker, engineer, who is my head man. Hap Adkins has since been transferred to the Hoover Dam project." Juel's address is Room 815, Victoria Building, St. Louis, Mo. — Brownie Taylor wants to be remembered to you gentle readers. He is working in Chicago, as I believe I said in a previous number. — RICHARD N. CHINDBLOM, *Secretary*, 5418 North Paulina Street, Chicago, Ill.

COURSE XIII

Al Bird writes from Jacksonville that the yachting business has been a victim of the depression, but expresses the opinion that his firm will weather the storm and soon be sitting pretty. — Dan D'Antoni is now Treasurer of the Equitable Equipment Company of New Orleans, a large firm selling all kinds of machinery. For a time Danny was Assistant Marine Superintendent with the Vaccaro Line, but resigned this position to accept the one mentioned above.

Willie Ulcher is Junior Engineer on the S. S. *Cefalu* of the Standard Fruit and Steamship Company, sailing out of New Orleans. This past fall he sailed all through the West Indies and across to Rotterdam and London. He writes that he is learning a lot of practical engineering, and will be master of a dozen different trades when he gets through. 'Ere long Willie will be taking exams for his Third Engineer's papers and after that step, who can tell? He expects to be in the West Indian trade until spring and then perhaps he will be sailing out of New York to Jamaica and Honduras.

Your secretary has finished a six months' training period in the Mold Loft of the Fore River plant of Bethlehem Shipbuilding Corporation and is now located in the steel mill for further training. — Parker H. Starratt, *Secretary*, 30 Wescott Street, Malden, Mass.

COURSE XVI

Hugh Mulvey writes from 260 South 46th Street, Philadelphia, that he worked for several months at the Keystone factory in Bristol, Pa., as a clerk in the planning department, but that he resigned his position to accept a job with the Kellett Autogiro Company of Philadelphia where he is doing stress analysis work. Now that Mulvey and Brady have opened up the way to news, I hope a few more men will break loose and let the world know what they are up to. Only for Heaven's sake, don't keep waiting for the next fellow to tell on you.

My own work is progressing quite smoothly, but much too slowly to suit me. I'm just about to take my 30 hour check on land planes. This includes all the stunts and a very generous sprinkling of cut gun emergencies. However, if all goes well, I hope to start my cross country and formation flying in the very near future. — FRANK H. HANKINS, JR., *Secretary*, R.S.D., N.A.S., Pensacola, Fla.

COURSE XVII

A for Ackiss, B for Bisson, — two good little men and true. Arnie toured Europe with a Yale orchestra this summer, after touring Camp Devons for two weeks, and now takes orders from Whidden-Beekman in Boston; Reg is keeping time with his T and S scholarship in the Big City. — Pete Calderon returned to his native haunts in Panama. (Does that explain the revolution?) Marsh Cleary at latest reports was with Johns-Manville in the Middle West. Your guess is as good as mine.

Handsome Bob Clyne is with the American Steel. — In case you didn't know, the J in J. Nelson Cooper is for Jawn, but don't let him know I told you. Coop is tackling the church and school field, under the pater's watchful eye, and will soon enter the blissful state.

The dead and missing come thick and fast right here, with only D. T. Houston checking in. Tul is with Eidlitz in New York. Last reports at this office have Leong headed for Hawaii continuing his studies. — Course XVII holds its lure for Len Peskin. — Phil Riley had a great season with the Orleans Club and is now batting for C. S. Cunningham on one of the new "Hahvud" buildings. — They tell me Bert Whitten is cutting a wide swath for Boston Consolidated Gas.

Seen at the monthly meetings of the 319th Engineer Regiment are a few near-related to the XVII gang in the persons of Ed Kingsley, Jim Muir, and Dick Foster. Ed delves deep in piles of orientals for Pray's. Jim is giving Flintkote a leg up. Speak for yourself, Richard. — ALVAH E. PERKINS, *Secretary*, Montrose Avenue, Wakefield, Mass.

1931

In spite of the depression, men have been placed in moderate numbers. Information is scanty at the present writing.

1931 Continued

Here's what there is, and if you would be included in the next issue, or if you would communicate with some lost friend, send a postal in and it shall be done. H. Perry Champlain, being the biggest man in the class, should perhaps receive first mention. United Fruit will be his address for several years to come. — Dave Arnott is with the Marine Insurance Company of New York City. — Norton is with Luckenbach, Thomas with American Gulf and West Indies, while J. G. B. Hutchins has entered the export field.

It is almost unbelievable, but several have elected to continue in the field of graduate study. Among these: Fliv Ford is coming back to M. I. T.; Leadbetter and Otis to Harvard Business; Chamberlain to Harvard Law; Fisk and Roddy to M. I. T.; and Dickinson to Munich or Heidelberg (wherever the beer flows freest). — Glen Goodhand joins the Eastman staff. — Bob Backus has adjourned to Chile with the Braden Copper Co. where, it is rumored, he has "gone native." — Ben Hazeltine is supposed to be working in the du Pont Fabrikoid Works in Holyoke. And, for the present, we will end this very brief account by noting that Ed Starr and Walter Paltz are continuing a natural, and so well-chosen profession. You will find them at the Gas works in New York City.

At this point I should like to take the liberty of including a few remarks concerning the methods employed in gathering information for this so-called letter. In each course one man is asked to correspond with the Class Secretary at convenient intervals in order that the closer relationship existing between this man and the other men in his course may be capitalized in making these notes more complete. In turn, the individual members of each course are asked to correspond with the Secretary of their course as often as items of interest enter their careers. Such writings should be spontaneous and need no urging. It is only through such a method as herein outlined that a truly successful account of the happenings in this Class may be brought before the entire Class.

The following men have either been asked or are hereby asked to act as permanent secretaries for their courses: I, Nelson B. Haskell; II, Richard T. Kropf; III, Robert S. Backus; IV, Fred Moss; IV-A, Otto Kohler; V, Carl W. Orleman; VI, John Dyer; VI-A, Charles B. Bassinger; VII, Harmon Truax; VIII, John Elting; IX, George Hickey; X, Bror Grondal; XI, Arthur Fuller; XII, David Ericson; XIII-C, John G. B. Hutchins; XIII, Maurice Sellers; XIV, F. C. Jelen; XV, John M. MacBrayne; XVI, James Fisk; XVII, J. Harold Genrich. — JAMES B. FISK, *General Secretary*, 79 Taber Avenue, Providence, R. I.

Atlanta Association of M. I. T.

The Annual Banquet of the Atlanta Alumni Association was held at the Piedmont Driving Club on February 27. "Chicken Legs as Found in the Average Restaurant, and Their Effect on Dancing and Petting Parties" was the long subject of a short, snappy speech by Rawson Collier '00. Our guest of honor returned from Birmingham particularly for the occasion. Seein' is believin', and you should have seen those chicken legs and embellishments served in true southern style. Entertainment of a novel variety was supplied by William E. Huger '22. The scarf dance by Arthur K. Adams '13, although impromptu, was an artistic contribution to the program and reflected Tech Show training.

The retiring president, C. A. Smith '99, supervised the elections, successfully passing the honors to Richard W. Smith '21, President; F. C. Foss '25, Secretary and Treasurer; and Arthur K. Adams '13, Sergeant at Arms. Other members present were Professor H. S. Busby '14, O. R. Etheridge '26, A. J. Kroog '22, H. C. McLaughlin '18, and C. H. Whittam '22.

Technology men who can arrange to be in Atlanta on the first Tuesday of the month, are cordially invited to meet with us at 12:30 p.m. in the Grill Room of the Atlanta Athletic Club. — FRANCIS C. Foss '25, *Secretary*, 643 Whitehall Street, Atlanta, Georgia.

M. I. T. Club of Central New York

Due to our comparatively small numbers we do not have any regular scheduled meetings, but meet two or three times a year, whenever there is sufficient reason. There are about 25 Alumni in Syracuse and vicinity who are taking an active part in these gatherings. The present officers are as follows: President, J. Murray Hastings '13, 606 Hills Building, Syracuse; Vice-President, Fred S. Hungerford '24, 1804 West Genesee Street, Syracuse; and Secretary-Treasurer, Frederick W. Barker, Jr., '12, First Trust and Deposit Company, Syracuse. — The last meeting was February 26, 1931, at which time we had as our honored guest and speaker Col. Frank L. Locke '86 of the Division of Industrial Coöperation and Research.

Frederick W. Barker, Jr., '12, is Assistant Vice-President of the First Trust and Deposit Company which is the largest banking institution in Central New York. — J. Murray Hastings, Jr., '13, is in the insurance business. — Charles S. Glenn '03 is with a firm of consulting engineers. Before joining this concern he was consulting engineer for the Solvay Process Company for several years.

Bates Torrey, Jr., '12, is chief engineer for the Solvay Process Company and associated with him in the engineering department are two other Technology men; namely, Karl T. Nilsson '25 and David D. Mohler '03. Dr. William C. Phalen '99 is geological engineer for Solvay and Fred Hungerford '24 is connected with the operating department of the same company on miscellaneous work throughout the plant.

Dr. Charles K. Lawrence '24 is a research engineer for the Atmospheric Nitrogen Corporation. — Harry N. Burhans '07 has sold his interests in a large hardware business which still bears his name and has retired. — Walter E. Hopton '91 is a partner in the Hopton Company, manufacturers' representative for industrial plant equipment and accessories. — Leroy G. Miller '27 is District Service Superintendent for the New York Telephone Company in this section.

Francis D. McKeon '26 is an assistant engineer in the New York State Highway Department and is at present engaged in supervising grading for one of the last links of the cross country highway Route No. 20. — James R. Vedder '07 is a member of the firm of Randall and Vedder, Architects. — William W. Cronin '04 is a member of the firm of Cronin and Card which conducts a business as civil engineers.

These notes have been prepared by Fred S. Hungerford '24 in order to relieve our Secretary who is at present busily engaged in several civic activities among which is the Community Chest. — FREDERICK W. BARKER, JR., '12, *Secretary*, First Trust and Deposit Company, Syracuse, N. Y.

Technology Club of Chicago

The activity of the Club during the past season has been centered largely about the weekly luncheons, held regularly every Tuesday at noon. For about a year now headquarters have been established in the club rooms atop the Medical and Dental Arts Building at 185 North Wabash Avenue. These quarters have been very enjoyable, offering a splendid view of the city, pleasant surroundings, an excellent cuisine, and easy access from any part of the city. Interesting talks have been featured at the luncheons from time to time, the best remembered of which having been one by Colonel Locke during a visit to Chicago; another by J. S. McDonnell '23, who described the high lights of the recent Guggenheim safety plane competition in which he participated with a ship of his own design; one by Russel W. Ambach '24, in which he discussed his experiences and observations during an eight-months' engagement by the Soviet government on a coal preparation project at Kharkov; and another by Dr. F. H. Newell '85, of Washington, D. C., who discussed the Bahai Temple (described in a recent issue of The Review) under construction on Chicago's north shore.

Several times during the year the Club entertained as guests men who are prominent in the affairs of the Institute. These included Dr. Tryon, Colonel Locke '86, Dr. Allan W. Rowe '01, and President Compton. The high spot of the year was the dinner at which President Compton and his brother, Dr. Arthur H. Compton, were the guests of honor.

Dr. Robert E. Wilson '16 has been made a director of the Standard Oil Company of Indiana. He has been engaged in research at the Whiting laboratories of the company and is a prominent figure in the technology of the hydrogenation of oils.

Frank D. Chase '00, President of Frank D. Chase, Inc., has been elected President of the Western Society of Engineers, the most active professional organization of its kind in the Midlands. — The genial Lonsdale Green '87 has been a subject of much concern to fellow Club members, inasmuch as he has been confined to home and hospital since the first of the year.

Cap Blake '06 of Detroit, one time President of the Technology Club of Chicago and now better known for his fathering of the renowned Fisher Building in Detroit, was a luncheon guest during the spring. His informal discussion of political and economic conditions in the Detroit area, and his description of activity, trends, and problems in the automobile industry formed the basis of table conversation at the Club luncheons for some weeks. — The Club regrets the removal of George A. Ricker '86 from Chicago to Washington, D. C.

J. S. McDonnell '23 has sold the "Doodlebug," famous safety plane of his design which has drawn such favorable comment in aeronautical circles. Speaking of circles, the "Doodlebug" takes off and lands in one 150 feet in diameter. Mac is now engaged in developing a ship of still more advanced design.

The membership Directory of the Technology Club of Chicago appeared during the early part of June. This Directory is almost wholly the work of Ross D. Sampson '13, Treasurer of the Club. It lists, so far as could be ascertained, every alumnus of the Institute resident in the Chicago area. Sampson devoted an unstinted amount of time and energy to the preparation of the Directory, and every name contained therein has been checked against the most reliable sources available (usually the alumnus himself) in order to insure that every address and business association shall be up-to-date and correctly given. About 600 Alumni are listed in this Directory. The advertising pages, too, provide a very interesting review of the goods and services that Technology men can provide. — ERNEST KOHLER, JR., '29, *Secretary*, 6028 Kimbark Avenue, Chicago, Ill.

The Technology Club of Cincinnati

The Technology Club of Cincinnati held its spring meeting Friday, May 15, with Dr. Karl T. Compton as the guest of honor. Dinner was served at 6:30 P.M., in the Florentine Alcoves of the Hotel Gibson. Fifty-six members of the Alumni and guests were seated at the various group tables to mark this as the largest turn-out in the history of the local club. Dr. Compton made a splendid impression personally and his words were given the closest attention. He radiates Technology enthusiasm and there is an undoubted increase in the interest displayed by the local Alumni in Institute affairs.

This is well indicated in the ready subscriptions being made to the scholarship fund, by means of which the Technology Club of Cincinnati pays the first year's tuition each year for some worthy local high school graduate entering the Institute. An interesting feature of this spring meeting was the presentation of the candidate for the next scholastic year by Stuart R. Miller '07, who is in charge of the scholarship fund. It has been very gratifying to the members that all the men selected so far have made excellent records, and that not only has the Institute kept us advised of this, but the men themselves have written from time to time acquainting us with their progress and activities.

There are now approximately 150 Technology Alumni in this vicinity, and that one-third of them should have put in their appearance at this meeting is a fine tribute to the newly elected officers, John E. Cochrane, Jr., '23, President; Kenneth A. Wright '19, Vice-President; Olive L. Bardes '21, Treasurer; and William V. Schmiedeke '12, Secretary. This has been the first affair conducted by them. President Cochrane has a second underway, a mixed summer outing in the adjacent lake region of northern Kentucky.

The Annual Dinner and election meeting was held in February with about 45 members in attendance, when Colonel Locke '86 of the Institute Personnel Department came to town with two rolls of films for a splendid evening of prime good fellowship. We are always ready to turn out in good numbers to greet such a distinguished visitor and there is always a chair at our luncheon table every Tuesday for the visiting Technology man. The Havlin Dining Room having closed its doors, our luncheon table is now located in the southwest section of the Frontier Room of the new Netherland Plaza Hotel, where every Tuesday from 12:30 to 2 P.M. you will be sure to find from five to 20 loyal sons of Technology. On one such Tuesday, the week the American Chemical Society held its convention in Cincinnati, Technology men from all over the country descended upon our luncheon table, including members of the Institute Staff, Professor Samuel C. Prescott '94, and Associate Professor George Scatchard.

Cincinnati is somewhat off the beaten path for men of the Institute traveling to the several parts of the country so that visitors heretofore have been few and far between. This year has been an unusual one for us as noted above. We hope our cordial receptions will induce others to pay us these Technology tonic visits. — WILLIAM V. SCHMIEDEKE, '12, *Secretary*, The Penker Construction Company, 1030 Summer Street, Cincinnati, Ohio.

Dayton Technology Association

The regular Saturday luncheon meetings of the Dayton Technology Association have been held on the first and third Saturdays of each month throughout the winter at the Engineers Club, informal talks by members of the Club being given from time to time.

Our former President, Lieut. Samuel T. Mills '21, was transferred from Wright Field to the New York University in the fall and the Vice-President, Levitt L. Custer '13, has been acting President since that time. — PHILLIP K. BATES, '24, *Secretary*, Frigidaire Corporation, Dayton, Ohio.

Detroit Technology Association

The Detroit Technology Association has a mailing list of 197 names in Greater Detroit and 95 more in Michigan, outside of Detroit. It has an insertion in the Detroit Telephone Directory reading, "Massachusetts Institute of Technology, Cherry 7210." Alumni or others calling this phone number will be connected with the service company which maintains our address stencils and may obtain from them information regarding the addresses of Alumni in this district, time and place of monthly meetings, and like information.

Throughout the winter months the Association holds monthly dinner meetings (generally the first Tuesday) at the University Club, East Jefferson Avenue. The present season which is just closing has been most successful, the attendance at the monthly meetings varying from 20 to 70.

Perhaps our most interesting meeting of the year was when C. B. Crouse, President of C. B. Crouse and Company, Investment Bankers, met with us and spoke on the subject of the Stock Exchange. He discussed its functions and operation in an interesting and instructive manner. After the dinner, we were privileged to inspect the new Detroit Stock Exchange. The officials of the Exchange retained a crew to run a demonstration for us. All of the 70 attending had a most instructive time.

We have enjoyed entertaining two men from the Institute at our meetings this year. First, Dr. Tryon told us of the latest happenings at the Institute and told of his trip, his stop with us being part of it, which was primarily to arouse interest in Technology among seniors in high schools and students in junior colleges. At another meeting, Col. Locke was with us and lead a round table discussion of personnel problems. He was also on a tour in the interest of the Institute. — Another very interesting meeting was one presided over by Arthur F. Fricker '25, who talked on "Ethyl Gasoline." — JOHN E. LONGYEAR, *Secretary*, 2000 Second Avenue, Detroit, Mich.

Technology Club of Lake Superior

The present roster of the local Club contains 34 names, but of this number 17 are residents of the mining districts from northern Minnesota to the Michigan peninsula, and hence rarely respond to notices of meetings. Of the remaining number we may expect a possible dozen local men to get together on occasion.

On the occasion of our annual meeting last November, Holman I. Pearl '10 was elected President to succeed William C. Lounsbury '04, and the undersigned was elected Secretary to succeed Jonathan A. Noyes '12, who had held that office for a

number of years. The feature of our annual meeting was the presence of Dr. James L. Tryon who gave us a heart to heart talk on the problems of Technology, the need of keeping up enrollment, the financial problems of the Institute, and a general outline of his efforts along all lines that may lead to the further upbuilding of our Alma Mater.

The question naturally rises in one's mind, what can a very "loose-jointed" local Club do to promote the fortunes of such a great organization as Technology? I presume we must go on the belief that every little bit helps. There gradually arose in the mind of the writer a plan which has met the approval of several of our local members and also of Professor Locke, our Alumni Secretary. The substance of this plan is revealed in the following letter that it is proposed to send out to a list of 70 principals and superintendents of schools in this section of the country. This list has already been compiled by the writer.

"The Massachusetts Institute of Technology needs no introduction, but some explanation of this letter may be in order. Throughout the country there are local Associations of Alumni of the Institute through which contact with the Alma Mater is maintained. Also an effort is made to bring to the attention of young men having an inclination towards engineering and the sciences the great educational advantages of Technology.

"The Technology Club of Lake Superior is the local organization. Without set program, it is our aim to act as a clearing house, as it were, between the Institute and prospective students. Catalogs and information may be had directly from the Institute but it is our belief that correspondence or direct contact with graduates may often be of material aid in helping a prospective student to decide on a choice of profession. Our aim will be to put such prospects in communication with men having already had years of experience in the field and who may be able to offer valuable suggestions. For students of unusual promise there are scholarships and a revolving loan fund which may help to meet expenses.

"This letter is addressed to Superintendents and Principals of schools in this territory in the belief that they have an opportunity of knowing of young men who may be considering a technical education. Suggestions on the part of teachers and inquiries from any students who are interested will be gladly received by the Secretary."

At this writing we have had no meeting of the Club since that of last November, hence there has been no general discussion of the plan. — FRANK HAYES, '90, *Secretary*, 614 Woodland Avenue, Duluth, Minn.

M. I. T. Club of Eastern New York

Officers are: President, Edward J. Hanley '24; Vice-President, Robert Palmer '04; Secretary, George W. Acock '27; and Treasurer, Charles J. Koch, Jr., '23.

On Tuesday, April 23, 1930, the first meeting of the Club year was held in the Hotel Van Curler. This meeting took the form of a luncheon at which Laurence A. Hawkins '99, Executive Engineer of the Research Laboratory of the General Electric Company was the guest speaker. At this meeting we welcomed to Schenectady several recent graduates from Technology, and Mr. Hawkins addressed his remarks principally to these men and the younger members of the Club. His remarks concerned the qualities that are necessary for success in a large industry.

In place of a meeting in the month of December a notice was sent to all members calling to their attention a meeting of the New York Club held in honor of Dr. Compton. — On February 27, 1931, a luncheon was held at the Mohawk Club at which Col. Frank L. Locke '86, Personnel Director of the Division of Industrial Coöperation and Research at Technology, was guest of honor.

On March 27, 1931, another luncheon meeting was held, this time at the Hotel Van Curler at which we were pleased to have Dr. A. E. Kennelly of Harvard University, formerly professor of Electrical Engineering at Technology, as our luncheon guest. For this meeting invitations were sent to all local Harvard Alumni to which there was a very gratifying response. Dr. Kennelly renewed old acquaintances and discussed very pleasingly the ties that bind students with professors.

Our next luncheon meeting was held on April 14, 1931, again at the Hotel Van Curler. At this meeting William R. Burrows '94, Vice-President in charge of manufacturing of the General Electric Company, was the guest speaker. — The Club contributed generously to the local Technology Scholarship Fund. A candidate was selected and given aid at Technology this year through this activity which is carried on jointly with the Albany Club. — GEORGE W. ACOCK, '27. *Secretary*, 1280 Dean Street, Schenectady, N. Y.

Technology Club of Fall River

Our annual banquet, held at the Quequechan Club on February 20, was a success in every way. After a very enjoyable dinner, President Haffenreffer '95 called the meeting to order for the election of officers. The officers, who have held office since 1927, were again reëlected. They are as follows: President, Rudolph F. Haffenreffer '95; Vice-President, Charles N. Borden '89; Secretary-Treasurer, Alden D. Nute '17. The members of the Executive Committee are Charles H. Warner '89, Richard H. Gee '20, and Duncan S. Owler '16.

The principal speaker of the evening was Mr. Gorton James, Vice-President of the Thompson and Lichtner Company of Boston, who gave a very interesting talk on "Marketing Research." Professor Locke proved to have some interesting comments to make on Technology affairs in general, with particular reference to the dormitories and new buildings.

President Haffenreffer has extended to the Club an invitation to hold the Spring meeting at his summer home at Mount Hope, probably some time in June. — ALDEN D. NUTE, '17, *Secretary*, P. O. Box 544, Fall River, Mass.

Technology Club of Hartford

The annual meeting of the Technology Club of Hartford was held at the City Club on Thursday, April 23, 1931. The meeting started at 6:30 P.M. with dinner, which was followed by the election of the new Board of Governors. Robert H. Mather '11 whose term had expired was reëlected to the Board and George W. Brady '27 was elected to succeed George W. Baker '92. Everett O. Hiller '04, Alan W. Crowell '25, and Samuel E. Rogers '13 composed the other three members of the Board whose terms run one more year. The Board of Governors later met and elected the following officers: President, Alan W. Crowell '25; Vice-President, Samuel E. Rogers '13; and Secretary-Treasurer, Robert H. Mather '11.

Following the business session, the meeting was turned over to the insurance section, headed by Samuel E. Rogers, who in turn introduced the speaker for the evening, Ira G. Hoagland, Secretary of the National Association of Sprinkler Manufacturers. About 30 Technology men attended the dinner and business meeting. This number was augmented by at least 25 more men from the various local insurance organizations to hear Mr. Hoagland and see the pictures.

As this goes to print, plans are laid for the Annual June Outing, to be held at the Boxwood Manor, Old Lyme, Conn., Saturday, June 27, at which Technology men from all over the state will assemble. — ROBERT H. MATHER, '11, *Secretary*, 51 Elm Street, Windsor Locks, Conn.

Montana Society of the M. I. T.

During the past year the local association has not been very active, as we have a widely scattered membership in the third largest state in the Union and it is hard enough to get them together in good times, let alone times like this "when the trading in the stock market is not strained and prices droppeth like the dew from heaven."

We had a few meetings in Butte and Great Falls, however, and reëlected the same officers, including Albert E. Wiggin, Great Falls, Chairman; W. L. Creden, Butte, Vice-Chairman; and the undersigned, Secretary-Treasurer. Earl Bardwell, Great Falls, and W. A. Kemper, Butte, head committees to keep before the students of high and preparatory schools the good points of M. I. T. Frederic C. Jaccard, Butte, heads the Scholarship Committee.

The undersigned was elected delegate-at-large of the Alumni Council, but we knew there was some string attached to it, for with the reorganization of the Alumni Council it looks as though he might lose his job. In regard to the reorganization plans: after a number of dis-

cussions we have submitted our views to our Boston representative, George A. Packard, who holds our proxy to act.

Montana always has been a good contributor to M. I. T. student activities, most of the cash coming from our leading member and first chairman, the late Charles W. Goodale'75, who during his lifetime accumulated a fortune said to have been $750,000, of which he left $50,000 to M. I. T. and for whom a dormitory has been named. Montana highly appreciates the honor bestowed to the memory of Mr. Goodale by M. I. T., as he was one of the state's greatest civic leaders. However, his passing has put a substantial crimp in our donating ability, but we managed to send $14 to the Athletic Association on the last drive.

We are in favor of having a traveling secretary for the Alumni Council, as men like Dennie have done wonders to revive and keep alive the interest of alumni in their Alma Mater. — We now have 43 members, and as soon as we find the corner around which prosperity is hidden, we will again resume activities. — The undersigned takes this means to thank the Chicago and Washington, D. C., sections for their hospitality to him during his travels. — CARL J. TRAUERMAN, *Secretary*, '07, 25 East Broadway, Butte, Montana.

Technology Club of Monterrey

The Monterrey Club was organized last year by initiative of Ramon F. Muñoz'09 and has held occasional meetings every two months or so. There are 19 members at present and we expect to increase the number this year. Not all the members are connected with engineering as it seems that the profession does not pay as well as other lines of activities here in Mexico. — Among the personal doings there is one that is noteworthy. Our President, Ramon Muñoz, is responsible for the introduction of natural gas to this city from the Texas fields. This fact has given Monterrey industries a great boom and has widened the possibilities of new industries. — The existence of the Club is menaced if the meetings are held too frequently, as there are other professional clubs to which all the members belong also. It is for this reason that meetings are held every two months, just to keep the interest of the Alumni focussed in the Institute. — BERNARDO ELOSUA '23, *Secretary*, Box 360, Monterrey, N.L., Mexico.

The Technology Club of New York

During the last 12 months the membership has shown a steady growth, and interest in the Club's activities continues to be good. The Thursday luncheons again proved attractive and brought before the members many speakers prominent in business and professional circles. The success of the luncheons is due to the fact that most of these guest speakers have something worth while to say and are capable of realizing when they have said it. Jack Fruit '02 is entitled to an assortment of plain and fancy encomia for the skill with which he rounded up the speaking talent and for the *savoir faire* with which he graced the chair throughout the season just closed.

In December the annual dinner of the Club was converted into an alumni reception for Dr. Karl Compton, who runs the Institute now that Dr. Stratton is too busy clipping its coupons. On this occasion 400 men gathered around the groaning board of the Hotel New Yorker and did eat and make merry, to say nothing of listening to a fine speech by Dr. Compton and an equally fine introduction by Gerard Swope'95. And you may take it from us, they know their speeches!

For those members and other Alumni who seek more light in their respective professions, the Club has established a series of seminars, or Faculty-Alumni conferences. To the best of our knowledge the seminar is the brain-child of President Dick Ranger, although he may have cribbed the idea somewhere without letting on. Since Christmas, one such seminar has been held every month, the discussion on each occasion being given over to the affairs of some particular department of the Institute. The regular program for these gatherings called for assembly at 5:30 and a certain amount of verbal sparring in order to get the range. Then came dinner, and while the groceries were being consumed, each table pooled its wit and experience and formulated a question to be answered afterward by the Faculty representatives. After dinner infighting set in, and so far into the night.

The first seminar, for no particular reason, was assigned to Electrical Engineering, and to say that the house was packed would be faint justice. Professors Dugald Jackson and Vannever Bush represented the Faculty and at the conclusion of the seminar presented to the Club the second problem turned out by the Institute's new Integraph, the first one having been given to Dr. Compton. This sheet of paper containing what looks like an ordinary circle now becomes one of the Club's prize possessions, although the average member (the writer, for example) hasn't the foggiest notion what it is all about.

In February came Architecture, with Professor Jean Jacques Carlu, Grand Prix de Rome, in the pivotal position, and in March, Dr. William P. Ryan conducted the seminar on chemical engineering. April brought mechanical engineering, with Professor Edward F. Miller, and in May the Department of Business and Engineering Administration had its big moment when another capacity crowd heard Professor Erwin H. Schell. — The Club feels honored by the visits of these distinguished gentlemen of the Institute Faculty and gratified at the fine response by the Alumni in New York. The seminar has proven itself, and will be with us again next year.

The Technology crews were the guests of the Club the week-end of May 16, on the occasion of their races with Columbia on the Harlem River. On the previous evening the visiting oarsmen and Coach Haines were entertained at a Training Table Dinner, where the Alumni were invited to meet the crews and vice versa. It was fare and fare alike, and short talks were made by Coach Bill Haines, Henry Manley '02, and the manager and captain of the varsity shell, with Marion Dimmock '22 performing as toastmaster. Despite the Club's efforts, Columbia proved the Gem of the Harlem.

Among important developments within the membership should be mentioned the publication of "Financial Problems in Installment Selling," by Otto C. Lorenz'18 and H. M. Mott-Smith '93. This business treatise is a pioneer in its field, treating exhaustively and comprehensibly a topic which heretofore has scarcely been touched upon. We congratulate Otto on the several fine reviews of his opus. — The Club continues at 22 East 38th Street, and cordially invites Technology men to make their headquarters here when visiting in the city. — GEORGE S. HOLDERNESS '22, *Corresponding Secretary*, The Fraternities Club, 22 East 38th St., New York City.

Technology Club of Puget Sound

The officers of the Technology Club of Puget Sound are Horace W. McCurdy '22, President, and W. Scott Matheson '99, Secretary-Treasurer.

We held one dinner meeting in May. We sent out 102 notices and received 35 replies and had 22 enthusiasts present at the dinner. Preliminary plans were discussed for the entertainment of Dr. Compton in Seattle July 1 and 2, and an entertainment committee was appointed. A luncheon meeting was planned for June 4 when final plans for Dr. Compton will be given out. The members are enthusiastic regarding the President's visit and we are looking forward to a big crowd and a good time.

President Horace W. McCurdy is President of the Puget Sound Bridge and Dredging Company, operating from Florida to Montreal and New York to Seattle, with business better than ever. Secretary-Treasurer Matheson is Manager of Sales Structural Steel and Forge Division of the Pacific Car and Foundry Company. — W. SCOTT MATHESON '99, *Secretary*, 813 Gwinn Street, Seattle, Wash.

Rocky Mountain Technology Club

The regular monthly meeting of the Club was held as a noon luncheon meeting at the Blue Parrot Inn, Denver, Colo., on Wednesday, May 20, 1931, with President Severance Burrage'92, acting as toastmaster and chairman. Our custom throughout the year having been alternate noon and evening meetings, the next evening gathering will be at the home of one of the members.

Secretary Arthur Hill '23 read some of the correspondence received during the past month from the Institute and other sources, and there followed a short discussion. C. R. Wilfley '06 was asked to relate a few of the experiences on his trip back east during the latter part of April and told of the remarkable growth of the

Institute and its equipment during the years he has been absent. He reported interesting business trips to Bangor, Maine, and to New York City, where he was pleased to learn that gold mining was on the boom again. He reported a pleasant visit with Professor Charles E. Locke '96, who showed him the Mining and Metallurgy Laboratories in Cambridge.

The Scholarship Committee, consisting of Alvah E. Moody '17, chairman, Harold O. Bosworth '02, and Rudolph H. Fox '12, announced they are still searching for an applicant who can qualify for the Regional Scholarship to M. I. T. which is awarded yearly to the Rocky Mountain Technology Club for their disposition. It was also announced that H. O. Bosworth has been appointed by the Institute as Honorary Secretary in Residence for this region. He will act as a sort of liaison officer between M. I. T. and prospective students and their parents in Denver and the nearby region.

All new Alumni in this region are invited to communicate with this club through the Secretary, Arthur E. Hill '23, Room 508 Denver National Bldg., or through President Burrage, 1355 Bellaire Street, Denver, Colo.

The following men were elected officers of the Rocky Mountain Technology Club: Clifford R. Wilfley '06, President; Arthur L. Hill '23, Secretary-Treasurer; and Willard E. Edwards, Jr., '26, Review Secretary. — WILLARD E. EDWARDS, JR., '26, *Review Secretary*, 1333 Pennsylvania Street, Denver, Colo.

Southwestern Association of M. I. T.

The Southwestern Alumni Association met in September, 1930, for a luncheon at the Kansas City Athletic Club. The following officers were elected for the year: John J. Falkenberg '19, President; A. R. Holden '23, Vice-President; and William McPherrin '14, Secretary and Treasurer.

The December meeting was a stag dinner at the Indian Hills Golf Club. On April 20, 1931, we met with the Engineers' Club. At this meeting Dugald C. Jackson gave a lantern slide (stereopticon) lecture on his trip through the vale of Cashmere, India. George C. Shaad, Dean of Engineering at the University of Kansas and formerly of the instructing staff at the Institute, and D. C. Jackson, Jr., Professor of Electrical Engineering at the University of Kansas, were also present. — On May 7, the Indian Hills Golf Club was again the gathering place for a stag dinner and games of chance. — WILLIAM L. MCPHERRIN '14, *Secretary*, Kansas City Life Insurance Company, Kansas City, Mo.

Washington Society of the M. I. T.

The regular luncheon meeting of the Washington Society held Friday, December 19, 1930, at 12:45 at the University Club very nearly became an open forum and debate, and most certainly would have, had it not been that the discussion had to be cut short so that most of the members might return to their labors.

The speaker of the occasion was Mr. William A. Roberts, Special Assistant Corporation Counsel for Public Utilities for the District of Columbia, formerly engaged in Railway Valuation work with the Interstate Commerce Commission, who presented a thorough analysis of "The Engineering Aspect of Public Utilities," stressing, of course, the viewpoint of the engineers among the public as interpreted by his office.

Unfortunately the meeting had to be adjourned before Edward D. Merrill '09, President of the Washington Rapid Transit Company, was able to answer Mr. Roberts' speech, but a number of the members remained after the adjournment, and arguments waxed hot as the members for and against recent proposed regulations for the transportation companies upheld their opinions.

The Society has elected the following to hold office during 1931: President, Harry W. Tyler '84; Vice-President, Henry C. Morris '00; Secretary, Joseph Y. Houghton '26; Treasurer, Charles H. Godbold '98; Chairman Scholarship Committee, Proctor L. Dougherty '09. The Executive Committee consists of the above officers ex officio, Kenneth P. Armstrong '10, and Alfred E. Hanson '14. In addition, an advisory executive group has been created to assist the Executive Committee, comprising Frederick H. Newell '85, Joseph W. Clary '96, Allen B. McDaniel '01, and Amasa M. Holcombe '04.

The great interest aroused by the speakers in November and December, and the current interest in the subject announced for the January Luncheon Meeting produced an attendance that taxed the facilities engaged to the utmost. Dr. John K. Gray, Professor of Economics at the American University, who was one of the party of economists visiting Russia last summer under the leadership of Professor Feager of Columbia University, was the speaker. His subject "Soviet Russia" was almost too well presented in the opinion of some of the members less favorably inclined to communistic principles than he, and by unanimous demand of those able to remain, the meeting was continued after a recess for the benefit of those who had to leave on time.

In lieu of the regular luncheon meeting for February, the Washington Society held its annual Banquet and Ladies' night at the Lafayette Hotel on Friday, February 20, 1931. The decorations for the dinner, including Cardinal Tulips and Pussy-Willows on the tables, were arranged entirely by a committee composed of our lady members, Miss Jane Bartlett, Mrs. Parker Dodge, Mrs. Harry W. Tyler, and Miss Katherine Buckingham. Following the dinner the principal speaker of the evening, Dr. W. A. R. Goodwin of William and Mary College, the alma mater of William Barton Rogers, founder of Technology, was introduced.

Following a brief talk by Professor Harry W. Tyler '84, our President, the floors were cleared and the remainder of the evening was given over to dancing, cards and like entertainment.

The speaker of the occasion at the luncheon meeting held March 20, 1931, at 12:45 at the University Club was American Manager John T. Gregg of the International Chamber of Commerce. Mr. Gregg gave a very enlightening talk upon the work and aims of the Chamber and explained its tendency to become a militant organization to combat economic disturbance by Soviet Russia, in spite of the fact that it aims to keep clear of any political partisanship.

In spite of several other society and association meetings on the same date, a good attendance marked the regular luncheon meeting of the Washington Society on April 17, 1931, at 12:45 at the University Club. The speaker of the occasion, Mr. L. W. Wallace, Director of the American Engineering Council, talked at some length on the work that the Council is doing. — JOSEPH Y. HOUGHTON, '26, *Secretary*, 402 Shepherd Street, Chevy Chase, Md.

The M. I. T. Club of Western Pennsylvania

Dr. Karl Taylor Compton was the guest of honor at the annual May dinner meeting of the M. I. T. Club of Western Pennsylvania on May 9 at the University Club. The occasion was further marked by the presence of the following notable array of guests: Very Rev. J. J. Callahan, President of Duquesne University; Dr. L. P. Sieg, Dean of the College, University of Pittsburgh; Professor W. E. Mott, Director of the College of Engineering, Carnegie Institute of Technology; Dr. F. D. Tyson, Professor of Economics, University of Pittsburgh; Dr. William Z. Ripley '90, Professor of Political Economy, Harvard University; and Dr. Arthur H. Compton, Professor of Physics, University of Chicago, and brother of President Compton.

The toastmaster for the evening was Frank J. Chesterman '05, a former President of the Club and recently elected Term Member of the Corporation. The meeting took on a semi-official aspect due to the presence of three Term Members, the other two being Maurice R. Scharff '09 and Professor Ripley, referred to above.

On behalf of their respective colleges, the Very Rev. Callahan, Dr. Sieg and Professor Mott expressed their greetings to President Compton and welcomed him to Pittsburgh. In a brief address Dr. Tyson complimented the Institute on its economics course, and expressed his hope that the economic world would in the future give the engineer more latitude. Professor Ripley, who was next called upon by the toastmaster, greeted President Compton on behalf of the Corporation, and expressed his pleasure at meeting the members of the Club. Professor Ripley's humorous reminiscences of his early days on the Faculty of "Boston Tech" evoked much appreciative interest and amusement.

President Compton, as principal speaker of the evening, acknowledged with pleasure the greetings of Duquesne University, the University of Pittsburgh, and the Carnegie Institute of Technology, and regretted the inability of Chancellor Bowman and President Baker to be present. In an address which very fittingly commemorated the year since his last visit to Pittsburgh, Dr. Compton discussed the relation of the Institute to its alumni body and the value of the sincere coöperation now existing between the two.

Dr. Compton stated that his previous visit to Pittsburgh in 1930 had been the direct inspiration for the recent Committee survey of the freshman and sophomore curricula and the resulting elimination of unnecessary duplication in certain courses. It is the custom at the Pittsburgh dinner meetings for each man to stand and mention briefly his present occupation or profession, his class, and his course at the Institute. It was from these remarks, said Dr. Compton, that he observed the very limited correlation between academic training and later occupation.

Following Dr. Compton's address, the meeting was thrown open to discussion. John T. Nichols '22 proposed that because of Pittsburgh's strategic industrial and engineering position and its relation to the metal industries, a symposium on metallurgy be held here in the 1931–32 Club year. Dr. Compton expressed himself as being entirely in agreement with this proposal, and stated that the Institute's staff would be glad to coöperate with the local Club in arranging such a symposium.

The meeting was adjourned at 10:45 P.M. Prior to the dinner meeting, the final business meeting had been held for the 1930–31 year. Officers were elected for the 1931–32 year as follows: Joshua C. Whetzel '17, President; Francis C. Foote '16, Vice-President; Samuel J. Helfman '24, Secretary; Millard M. Greer, Assistant Secretary for Membership; Warren D. Smith '27, Assistant Secretary for Publicity; Howard W. Dexter, Jr. '23, Treasurer; and R. W. Chandler '12, Alumni Council Representative. — SAMUEL J. HELFMAN, '24, *Secretary*, 435 Sixth Avenue, Pittsburgh, Pa.

The 153rd Council Meeting

This last Council Meeting of the year, on May 25, was held for the presentation of reports and for the election of three new members to the Nominating Committee. This election resulted in the choice of Walter Humphreys, '97, Emmons J. Whitcomb, '11, and Ralph T. Jope, '28, who will serve for three years on this highly important committee whose duty it is to select the names to be voted on by the Alumni body for term membership nominations and to nominate officers of the Alumni Association.

During the dinner which preceded the meeting, President Karl T. Compton gave a little talk as salad orator, and told of his recent visits at the meetings of Technology men in Pittsburgh, Cleveland, Cincinnati, and Louisville. A large attendance was recorded in each place, with much enthusiasm. One suggestion which came to him at Louisville was that Technology should consider the giving of courses on the use of lumber in building. Dr. Compton ended with one of his characteristic stories, which brought down the house. . . .

An amendment to the minutes of the 152nd Meeting having been circulated, as well as the minutes of that meeting, the reading was dispensed with and it was voted to accept the minutes of the 152nd Meeting amended as follows: Mr. Roswell Davis, '05, has pointed out that in the minutes of the last meeting an error was made in that the oral remarks of the Secretary erroneously ascribed to Mr. Davis a statement that alumni news in The Review was not over 25% of the total Review, whereas Mr. Davis had actually referred only to Institute news, and excluded class news.

The Secretary reported that at the meeting of the Executive Committee which preceded the Council Meeting the Treasurer of the Association reported that the Association would end the year with an operating surplus and it was voted that a large portion of it be placed in the Association's Permanent Funds. Mr. Lobdell reported for The Review that the average net paid circulation for the first been 8,981, which compares favorably with 8,695, the net paid average of last year's volume. Dues payments up until now total 7,602, or 85 below last year's seven numbers of the present volume has final count.

The Secretary further reported that the ballots on the Reorganization Plan would go out to all members of the Association this week; that two new members had been elected to the Association; that J. Rhyne Killian, Jr., '26, and Charles E. Locke, '96, had been elected Treasurer and Secretary respectively for the year 1931–32; that Dr. Samuel C. Prescott, '94, would be in England and France during June and July, and would be glad to meet Technology men in London and in Paris. Any members of the Council having friends in these two cities were requested to give their names to Dr. Prescott, especially if these friends were of the type who would go ahead with arrangements for a meeting of Technology men.

In his annual report Secretary Locke said in part: "*Council Meetings*. This concluding meeting makes a total of seven for the year, Nos. 147 to 153 inclusive, which have been generally well attended. Dr. Compton spoke to us in October on Institute and Alumni affairs. Frederick A. Hannah, '95, told us about Russia in November. (He died very shortly after.) The January and April meetings were devoted to discussion of reorganization. In March occurred the annual joint meeting with the Faculty Club with speakers on comprehensive examinations. February was a dinner and dance with the dormitory students at their annual party in Walker Memorial. . . .

"*Summary of Accomplishments*. Alumni officers have progressed so smoothly that one's first thought is that nothing important has been done. However, further reflection shows that real accomplishments have been made. Among the more important the following may be mentioned: establishment of permanent standard Technology colors; establishment of a reserve fund for reunions; permanent naming of dormitory units and preparation of suitable commemorative tablets therefor; optional plan for payment of life membership fees in installments over a five-year period; thorough discussion of possible reorganization of the Alumni which will undoubtedly lead at least to a more satisfactory scheme of electing term members of the Corporation; the trial of the experiment of presenting to all former students a comprehensive news letter extracted from the July Review to give them news of every class and a verbal picture of Technology as it exists today.

"*Future Policies*. The most pressing problem, as the Secretary sees it, is that of creating more activity and interest in the Alumni, especially those at a distance. More men should vote; more should read The Review; more clubs should be visited at more frequent intervals. Local representatives of these clubs on the Council should establish better contacts and men selected who can visit their clubs.

"The Alumni Association work should be more closely tied in with various phases of the Institute's administration, such as that of the admissions office, the personnel work, regional scholarships, publicity representatives in all important cities, all under the head of an able full time director. The Constitution should be revised after the reorganization plan is settled. Inactive local clubs which cannot be stimulated should be dropped.

"The Technology Clubs Associated may well be abolished. Concerted effort should be made to locate missing Alumni, which now number around 7,000. An organization affiliated with the Alumni Association should be provided for special groups such as teachers, public health students, Army and Navy men during the War, who have all received instruction at Technology without being formally registered and a number of whom have asked for recognition."

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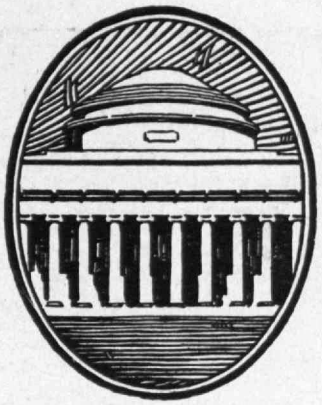

INFORMATION

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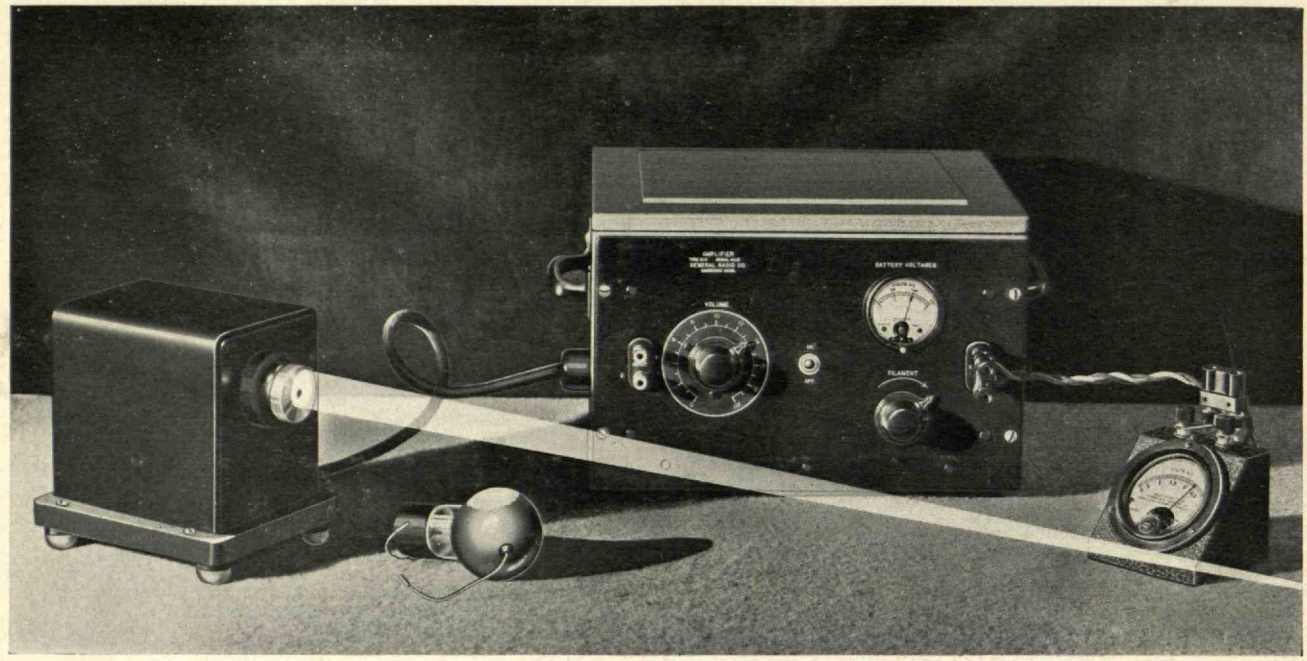

THE ELECTRIC EYE

"ELECTRIC eye" is popular jargon for photo-electric cell, the member of the vacuum-tube family that converts pulses of light into pulses of electricity. Talking movies, bean counters, burglar alarms, cigar sorters, robots, and television (when, as, and if) are important uses. In fact there is a professional jest to the effect that every new invention ought to incorporate a photocell . . . "just to prove its newness."

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